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Materials Screened As Animal Systemic Insecticides At Kerrville, Texas, 1960–1967



Production Research Report No. 116

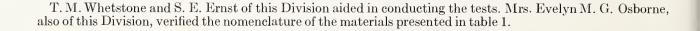
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Washington, D.C.

Materials Screened As Animal Systemic Insecticides At Kerrville, Texas, 1960–1967

By R. O. DRUMMOND Entomology Research Division

Since 1953, more than a thousand candidate materials have been evaluated in screening tests to determine their activity as animal systemic insecticides at the Kerrville, Tex. laboratory, Entomology Research Division, Agricultural Research Service, U.S. Department of Agriculture. Results of tests with 438 compounds screened during 1953–59 were presented by Drummond (2). The results of screening tests with systemically active insecticides and additional tests with these insecticides administered to cattle for the control of cattle grubs, Hypoderma spp., have been presented in a series of reports

(3, 4, 5, 6, 7, 8, 9). The work reported in this publication is a continuation of the research reported for 1953–59 (2). It contains results of tests with materials screened from 1960 to 1967. It also contains results of tests with a few materials screened before 1960, but whose chemical designations were not available at the time of the publication of the previous report (2). For some other materials screened during 1960 to 1967, the chemical designations were not available in time for this report, and thus these materials could not be included.

EXPERIMENTAL PROCEDURES

With one exception, the procedures used in the screening test have not been changed since they were standardized in 1956. These procedures, described briefly by Drummond (1, 2) and in detail by Graham (10), are presented as follows.

The midsections of guinea pigs, from the front to the hind legs, were closely clipped with small animal clippers, and a plastic capsule (¾ inches high by 1-inch diameter) was attached to the side of the chest area with Branding Cement® and adhesive tape. After 3 to 5 hours, to allow the cement to dry partially, a minimum of 10 starved nymphal lone star ticks, Amblyomma americanum (L.), were placed in the capsule and the lid of the capsule was screwed onto the base.

About 24 hours after the capsules were placed on the guinea pigs, a small wound was made in the hip of each guinea pig and infested with about 10 to 25 newly hatched screwworm larvae, *Cochliomyia hominivorax* (Coquerel). The use of screwworm larvae was discontinued in the fall of 1962 when the colony at Kerrville was destroyed because of the program to eradicate screwworms in the South-

western United States. Screwworm larvae were replaced by larvae of both the secondary screwworm, Cochliomyia macellaria (F.), and the black blow fly, Phormia regina (Meigen). Larvae of these two species do not usually invade living tissue, and they do not remain in an artificial wound. Therefore, it was necessary to alter the infestation procedures so that the larvae were confined in wounds and thus remained in contact with wound fluids and living flesh as do screwworm larvae. In the procedures used since 1962, two wounds were made on the back of each guinea pig; one wound in front of the girdle of adhesive tape that held the plastic capsule for ticks, and the other behind this girdle. Wounds were made by cutting away a dime-sized piece of skin and slightly scarifying the underlying tissues. About 50 to 100 newly hatched larvae were placed in each wound; C. macellaria in the forward wound and P. regina in the rear one. Immediately after larvae were placed in a wound, the wound was covered with a bandage (a piece of cotton attached to adhesive tape) so that larvae would be confined to the area of the wound. Larvae of the two blowflies were somewhat less susceptible to systemic insecticides than were screwworm larvae (6), but could be used in the screening tests.

¹ Italic numbers in parentheses refer to Literature Cited, page 41.

At the time that the guinea pigs were infested with fly larvae, the capsules were inspected for ticks, and any unattached ticks were removed. This was necessary so that ticks would be actively engorging during the period of treatment of the guinea pig.

One day after the guinea pigs were infested with fly larvae, they were treated orally or subcutaneously with the candidate chemicals. For dosages of 25 to 100 milligrams per kilogram, the usual initial dosage, the chemicals were formulated as 5 percent solutions in Tween-20 (pelyoxyethylene sorbitan monolaurate); for administration at dosages of 10 milligrams per kilogram or lower, the chemicals were formulated as 1 percent solutions in Tween-20. Often the initial dosage was less than 100 milligrams per kilogram because of information on the toxicity of the chemical furnished by the supplier of the candidate chemical. At any dosage, one guinea pig was treated orally and another subcutaneously. For the oral treatment, one end of a 1-inch piece of urinary catheter was placed over the tip of a syringe and the other end was inserted into the esophagus of the guinea pig, and the treatment was administered into the esophageal tract of the guinea pig. For the subcutaneous treatment, a 20-gage needle was placed on the tip of the syringe and inserted under the skin on the dorsal neck region of the guinea pig. The treatment was injected subcutaneously in two or three areas of the neck and the area massaged lightly to lessen the chances of the liquid leaking out of the injection hole.

At about 4 hours posttreatment, about 30 starved stable flies, Stomoxys calcitrans (L.), which had been placed in small (3 inches long X 1-inch diameter) cylindrical, screen wire cages, were allowed to feed on the shaved belly of each guinea pig. After about 10 minutes, flies were anesthetized with carbon dioxide; those flies that fed were separated from unfed flies, counted, and held for 24 hours, when mortality was recorded. Stable flies were also allowed to feed on the guinea pigs at 24 hours posttreatment.

At 24 hours posttreatment, the wounds were examined for live larvae, and such larvae were killed with a few drops of benzol. This was done to prevent the guinea pigs from being killed by these myiasis-

producing larvae.

At 3 to 5 days posttreatment, the nymphal ticks finished engorging and detached from the treated guinea pigs. The number that engorged was compared with the number that had been counted attached immediately before treatment to determine effects of the treatment on the engorging of the ticks. Engorged ticks were held at 80 percent relative humidity and 27° C. for at least a month. The number of adult ticks that emerged from the engorged nymphs was compared with the number of engorged nymphs to determine the effects of the treatments on the molting of the ticks.

If any of the arthropods or the guinea pigs were killed at the initial dosages, successively lower dosages were administered to guinea pigs until the guinea pigs survived and there was no systemic ac-

tivity against the arthropod.

RESULTS

The results of tests with 640 candidate chemicals are presented in table 1. In this table the materials are listed according to current Chemical Abstracts nomenclature. In the index the materials are listed according to Entomology number (ENT-), and common name or company number is also presented.

Of the 640 candidate materials tested, 173 or 27 percent were systemically active against one or more of the arthropodds. The spectrum of activity of these 173 systemically active insecticides is presented as follows:

Active Against—	$No.\ of$ $Insecticides$
Fly larvae Fly larvae and stable fly adults Fly larvae and ticks	38 17
Fly larvae, stable fly adults, and ticks Stable fly adults Stable fly adults and ticks	24 8
Ticks	11

Of the 173 systemic insecticides, 130 (75 percent) were active against fly larvae, 99 (57 percent) were active against stable fly adults and 65 (37 percent) were active against ticks. A total of 37 (22 percent) were systemically active only when administered orally, 30 (17 percent) only when administered subcutaneously, but 106 (61 percent) were active when administered either orally or subcutaneously to guinea pigs. Eighty-two insecticides (47 percent) were systemically active at dosages that were lethal to the guinea pigs, but 91 (53 percent) were systemically active at dosages that were not lethal to the guinea pigs.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]

			XX: 1 /		L	owest dosage	(mg./kg.)-	_	
			Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—			Nympha
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
1	25067	Acetaldehyde, butyl 1,1- dimethyl-2-propynyl acetal	100 O. 100 Sc.	N N	I			I	I
2	27403-X	Acetanide, 2-fluoro-N-methyl-N-1-naphthyl-, 25-percent emulsion concentrate	10 O. 10 Sc.	0.5ª 0.5ª		. I . I	I I	I	I
3	1348	Acetamide, N-1-	100 O.	N		-	I	Ī	I
4	23540	naphthylthio- Acetanilide, 2,4'-	100 Sc. 100 O.	N N			I I	I I	I
1	20010	dichloro-	100 Sc.	Ñ		_	Î	Î	Ì
5	25651	Acetanilide, 4'-(3, 3-	100 O.	N	Ĩ			Ĩ	I I I
c	25056	dimethyl-1-triazeno)	100 Sc.	N	I		I	I I	Ţ
6	25956	Acetic acid, [(2-hydroxy= ethyl) thio]-, isobornyl ester, O-ester with O,O-diethyl phosphorothioate	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$		I I	Ī	Ĭ	I
7	25930	Acetic acid, mercapto-, 2-chloro-p-menth-8- en-1-yl ester, S-ester with O, O-diethyl phosphorodithioate	100 O. 100 Sc.	100 N		I I	I	I	I
8	23030	Acetic acid, mercapto-,	100 O.	N			I	I	I
	2	ethyl ester	100 Sc.	N		. I	I	Ī	I
9	25650	Acetic acid, mercapto-, ethyl ester, S-ester with O, O-diethyl phosphorodithioate	100 O. 100 Sc.	100 100	I			I	I
10	27386	Acetic acid, mercapto- phenyl-, ethyl ester, S-ester with O,O- dimethyl phosphoro- dithioate	100 O. 100 Sc.	100 N		I I	I	I	I I
11	27553	Acetimidic acid, N-	100 O.	N			I	I	I
		[(methylcarbamoyl)=	100 Sc.	10		. I	I	10	25
12	27568	oxy]-, ethyl ester Acetimidic acid, N-	100 O.	25		. I	I	I	I
		[(methylcarbamoyl)oxy]	100 Sc.	$\frac{25}{25}$		-	Î	Î	Ĩ
19	079.41	thio-, ethyl ester	100.0	0.			-		т
13	27341	Acetimidic acid, N- [(methylcarbamoyl)oxy]	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 10 \end{array}$		-	I I	I	I
1.4	20404	thio-, methyl ester		3.7					т.
14	28464	Acetoacetamide,	100 O.	N		. <u>I</u>	I	I	I I
15	25623	N-piperonyl- Acetoacetic acid, 2-phos=	100 Sc. 100 O.	N 50	I	. 1	1	Ĭ	Ī
		phono-, triethyl ester	100 Sc.	5	Ĩ			Ī	I
16	26275	Acetone, dimethyl acetal	100 O.	N	I			I	I
17	23575	p-Acetophenetidide,	100 Sc. 100 O.	N N	I	I	Ī	I	I
11	20010	2-chloro-	100 O. 100 Sc.	100		Ī	Ī	Ĭ	Ĭ
18	25499	Acetophenone,	100 O.	100	I			Î	I
10	90014	3'-(benzyloxy)-	100 Sc.	N	Ī			I	Į
19	26014	Acetophenone, 3'-ethoxy-	100 O. 100 Sc.	N N	I I			I	I
20	26007	Acetophenone, 4'-ethoxy-	100 Sc.	N	I			Ī	Ī
		3'-methoxy-	100 Sc.	N	Ī			Ĩ	Ī

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highort		$\mathbf{L}_{\mathbf{c}}$	owest dosage	(mg./kg.)-		
			$egin{array}{c} ext{Highest} & - \ ext{dosage} \end{array}$			Causin	g 100% kill	l of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—		4.1.1.	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
21	26006	Acetophenone, 4'-ethoxy-	100 O.	N	I I			I	Į
22	27029	2-phenyl- Acetophenone, 4'-nitro-, O-(phosphonothio)= oxime, diethyl ester	100 Sc. 100 O. 25 Sc.	${100 \atop 25}$	1	I I	I	I I I	I I I
23	26325	Acrylamide, N-(1,1,3,3- tetramethylbutyl)-	100 O. 100 Sc.	N N	I I			I	I
24	26034	Acrylanilide, 3',4'-	100 Sc. 100 O. 100 Sc.	N 100	Î I			Î T	Î I
25	27402	dichloro-2-methyl- β-Alanine, N-phenyl-,	100 Sc. 100 O. 100 Sc.	N N		I I	I I	İ	I I
26	23112	hydrazide Alipal CO-436, am- monium salt of a sul= fate ester of an alkyl= phenoxypoly(ethylene= oxy) ethanol	100 Sc. 100 Sc.	N 100	I I			I I	I
27	31838	Aniline, N, N-bis(2- chloroethyl)-	100 O. 100 Sc.	N N	I I			I I	I I
28	26289	Anthranilic acid, 1-naphthyl ester	100 Sc. 100 O. 100 Sc.	N N	Ĭ I			I I	I I
29	28018	Benzamide, o-amino-	100 O.	N N		I I	I I	I I	I I
30	26176	Benzenethiol,	100 Sc. 100 O. 100 Sc.	N N	I I	. 1	1	Ī	I I
31	26999	p-tert-butyl- Benzilic acid, 4,4'- dichloro-, isopropyl	100 Sc. 100 Sc.	N N		I I	I I	I	I I
32	50598	ester Benzimidazole, 2-(4-	100 O.	100		. I	I I	I I	I I
33	27438	thiazolyl)- 1-Benzimidazole= carboxylic acid, 5,6- dichloro-2-(trifluoro= methyl)-,phenyl ester	100 Sc. 100 O. 100 Sc.	100 25 50		I	I I	I I	I I
34	27342	Benzimidic acid, p-chloro- N-{(methylcarbamoyl)= oxy]thio-, methyl ester	100 O. 100 Sc.	N 100		I 100 ^b	1100^{b}	I 100	I
35	26784	Benzoic acid, m-(piperi= dinocarbonyl)-, methyl ester	100 O. 100 Sc.	N N	I			I	I
36	25363	Benzophenone, 2,2'-	100 O. 100 Sc.	N	I I			I	I
37	27125	dihydroxy-4-methoxy- $2H$ -1-Benzopyran-3-acetic acid, 7-hydroxy- α , 4-dimethyl-2-oxo-, ethyl ester, O -ester with O , O -diethyl	100 O. 100 Sc.	N 50 25	1	100 100	100 100	I I I	I I I
38	27126	phosphorothioate 2H-I-Benzopyran-3- acetic acid, 7-hydroxy- 4-methyl-2-oxo-, ethyl ester, O-ester with O,O-diethyl phosphorothioate	100 O. 100 Sc.	25 25		1 50	50 ^ь I	I I	I I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			III:-bt		Lo	owest dosage	(mg./kg.)-	_	
T .	T) Y III		Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
39	27124	2H-1-Benzopyran-3- acetic acid, 7-hydroxy- 4-methyl-2-oxo-, methyl ester, O-ester with O, O-diethyl	100 O. 100 Sc.	25 10		25 ^b I	25 ^b I	I 25	I I
40	28017	phosphorothioate 1,2,3-Benzotriazin-	100 O.	N		I	I	I	I
41	25718	4(3H)-one	100 Sc. 100 O.	N 100		I	I I	I I	I
41	20710	Bi-2,4-cyclopentadien- 1-yl, decachloro-	100 O. 100 Sc.	100		İ	İ	Ī	Ī
42	27138	3-Biphenylcarboxanilide,	100 O.	25		Î	Î	Î	Î
		2",4',4",5,5"-	100 Sc.	50		I	I	I	I
43	27140	pentachloro-2-hydroxy- 3-Biphenylcarboxanilide, 2",4',5,5"-tetra= chloro-2-hydroxy-	100 O. 100 Sc.	N N		I	I	I	I
44	27137	3-Biphenylcarboxanilide, 2",4",5,5"-tetra= chloro-2-hydroxy-	100 O. 100 Sc.	$\frac{50}{50}$		I	I I	I	I
45	27135	3-Biphenylcarboxanilide, 2",5,5"-trichloro-2-	100 O. 100 Sc.	50 50		I	I I	I	I I
46	27136	hydroxy- 3-Biphenylcarboxanilide, 3",4",5-trichloro-2-	100 O. 100 Sc.	50 100		I	I I	I	I
47	27139	hydroxy- 3-Biphenylcarboxanilide, 4', 4'', 5-trichloro-2-	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 100 \end{array}$		I	I	I	I
48	24351	hydroxy- Borneol, propionate	100 O.	N	I			I	I
			100 Sc.	N	Ī			Î	Ĩ
49	18066-X	Butane, 1,1-bis(p-chloro- phenyl)-2-nitro-, mix- ture with 1,1-bis(p- chlorophenyl)-2- nitropropane (2:1)	100 O. 100 Sc.	N N	I			I I	I
50	18304	1,4-Butanediamine,	100 O.	N	Ī			Ī	Ī
51	26005	dihydrochloride 2-Butanone, 1-(p-meth=	100 Sc. 100 O.	N N	I I			I	I I
91	20000	oxyphenyl)-	100 O. 100 Sc.	Ň	İ			İ	Ì
52	23864-X	3-Buten-2-one, 4-(o- hydroxyphenyl)- (crude)	100 O. 100 Sc.	N N		I I	I I	Î I	Î I
53	25073	3-Buten-2-one, 4-(2,6,6- trimethyl-1-cyclohexen- 1-yl)-	100 O. 100 Sc.	N 100	I I			I I	I
54	23121	3-Butyn-2-ol, 2-methyl-	100 O.	N	I			Ī	I
5.5	32078	Buturia acid m hada	100 Sc.	N	I .			I	I
		Butyric acid, m-hydroxy= benzylidene ester, propionate	100 O. 100 Sc.	N N	I I			I	I
56	25693	Butyric acid, 2-chloro-3- hydroxy-3-phosphono-, trimethyl ester	100 O. 100 Sc.	N 100	I			I	I
5 7	25697	Butyrie acid, 2,3- dibromo-3-hydroxy-, benzyl ester, dimethyl phosphate	100 O. 100 Sc.	N 100	I I			I	I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow files, stable files, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Himb and		Le	owest dosage	(mg./kg.)-		
			Highest - dosage			Causin	g 100% kil	l of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—		4.1.1/	Nympha
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
58	25744	Butyric acid, 2,3- dibromo-3-hydroxy-, p-nitrobenzyl ester, dimethyl phosphate	100 O. 100 Sc.	100 100	I			I I	I
59	25688	Butyric acid, 2,3- dichloro-3-hydroxy-3- phosphono-, triethyl ester	50 O. 50 Sc.	50 5	I			I I	I I
60	27211	Butyric acid, 4-hydroxy- 2-mercapto-, γ-lactone, S-ester with O,O- diethyl phosphoro= dithioate	100 O. 100 Sc.	N 100		-	I	I	I
61	27333	Butyric acid, 4-hydroxy- 2-mercapto-, \gamma-lactone, S-ester with O,O- diethyl phosphoro= thioate	100 O. 100 Sc.	50 100		. I	I I	I	I
62	25926	Butyric acid, 2-hydroxy- 4-phenyl-, ethyl ester	100 O. 100 Sc.	N N			I I	I I	I I
63	25925	Butyric acid, 2-hydroxy-	100 O.	N		Ī	I	I	I
64	25607	4-phenyl-, methyl ester Calcium phosphate (low bulk density, high	100 Sc. 100 O. 100 Sc.	N N N	I I	. I	I	I I I	I I I
65	25661	surface area) Carbamic acid, 2-mercaptoethyl ester, S-ester with O, O-diethyl	100 O. 100 Sc.	10 10	10 10			I	25 50
66	25660	phosphorodithioate Carbamic acid, 2-mercap= toethyl ester, S-ester with O,O-dimethyl phosphorodithioate	100 O. 100 Sc.	N 100	$\frac{25}{25}$			50 50	$\begin{array}{c} 100 \\ 50 \end{array}$
67	25868	Carbamic acid, 2-[(mer=captomethyl) thio] ethyl ester, S-ester with O,O-dimethyl phosphorodithioate	100 O. 50 Sc.	100 50		I I	I I	I I	I
68	27046	Carbamic acid, 2-[(mer=captomethyl)thio] ethyl ester, S-ester with O-isopropyl O-methyl phosphorodithioate	50 O. 50 Sc.	1 a 1 a		I I	I I	I I	I
69	27264	Carbamic acid, acetyl= methyl-, m-tert- butylphenyl ester	100 O. 100 Sc.	100 N		I I	I	I I	I
70	27262	Carbamic acid, acetyl= methyl-, 6-chloro- 3,4-xylyl ester	100 O. 100 Sc.	N N		-	I I	I	I I
71	27263	Carbamic acid, acetyl= methyl-, 4-(dimethyl= amino)-3,5-xylyl ester	100 O. 100 Sc.	100 N		-	I I	I	I
72	25968	Carbamic acid, butyl-, 2-[(mercaptomethyl)= thio]ethyl ester, S-ester with O,O-dimethyl phosphorodithioate	100 O. 100 Sc.	25 50		т	I	I I	I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (0.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 1 4		L	owest dosage	(mg./kg.)-	_	
T .	TINTES.		Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
73	6183	Carbamic acid, dibutyl-,	100 O.	N			I	Ī	I
74	27376	ethyl ester Carbamic acid, dimethyl-,	100 Sc. 100 O.	$\frac{100}{25}$. <u>Į</u>	I I I	I I I	I I I
75	24728	benzo[b]thien-4-yl ester Carbamic acid, dimethyl-, ester with 3-hydroxy- 5,5-dimethyl-2-cyclo= hexen-1-one	100 Sc. 100 O. 100 Sc.	$\begin{array}{c} 25 \\ 100 \\ 100 \end{array}$	I I			I 100	I
76	25922	Carbamic acid, dimethyl-, ester with 3-hydroxy- N,N,5-trimethylpyra= zole-1-carboxamide	100 O. 100 Sc.	$\frac{25}{25}$		W 0	50 50	I	I
77	25664	Carbamic acid, dimethyl-, 2-hydroxyethyl ester, O-ester with O,O-diethyl phosphorothioate	100 O. 100 Sc.	N 100	$\begin{array}{c} 50 \\ 100 \end{array}$			100 I	I
78	25662	Carbanic acid, dimethyl-, 2-mercaptoethyl ester, S-ester with O, O-diethyl phosphorodithioate	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 10 \end{array}$	$\begin{array}{c} 25 \\ 25 \end{array}$			$\frac{25}{50}$	25 50
7 9	19059	Carbamic acid, dimethyl-, 6-methyl-2-propyl-4- pyrimidinyl ester	100 O. 100 Sc.	N 50	I			I 100	I
80	24852	Carbamic acid, dithio-, anhydrosulfide with O,O-diethyl phosphoro= thioate	100 O. 100 Sc.	50 50	I			I	I
81	25969	Carbamic acid, ethyl-, 2-[(mercaptomethyl)= thio]ethyl ester, S-ester with O,O-dimethyl phosphorodithioate	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$		25 ^b I	25 ^b I	I	50 50
82	27179	Carbamic acid, ethyl-, 2-[(mercaptomethyl)= thio]ethyl ester, S-ester with O-isopropyl O-methyl phosphoro= dithioate	10 O. 10 Sc.	$\begin{array}{c} 2.5 \\ 2.5 \end{array}$		-	I	I	I
83	25808	Carbamic acid, (2-hy=droxyethyl)-, 2-chloro=ethyl ester, O-ester with O,O-diethyl	50 O. 100 Sc.	50 100	I I			I	I
84	25807	phosphorothioate Carbamic acid, (2-hy= droxyethyl)-, ethyl ester, O-ester with O,O-diethyl phosphoro=	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 100 \end{array}$	I I			I I	I
85	25806	thioate Carbamic acid, (2-hy= droxyethyl)-, methyl ester, O-ester with O, O-diethyl phosphoro= thioate	100 O. 100 Sc.	100 N	100 I			I I	I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (0.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TI' b		$\mathbf{L}_{\mathbf{c}}$	owest dosage	(mg./kg.)-	_	
			Highest - dosage	<u> </u>		Causin	g 100% kil	l of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—		4.3.1.	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
86	25657	Carbamic acid, isopropyl-, 2-mercaptoethyl ester, S-ester with O, O-diethyl phosphorodi=thioate	100 O. 100 Sc.	50 50	50 ^b 50 ^b			I 50	I I
87	27404-X	Carbamic acid, (mercapto- acetyl) methyl-, ethyl ester, S-ester with O, O-diethyl phosphoro- dithioate, 65-percent emulsion concentrate.	100 O. 100 Sc.	25 50			I	I 50	I I
88	25803	Carbamic acid, (2-mer- captoethyl)-2-chloro= ethyl ester, S-ester with O, O-diethyl phosphoro= dithioate	50 O. 50 Sc.	10 50	I I			I	I I
89	25804	Carbamic acid, (2-mer- captoethyl)-2-chloro= ethyl ester, S-ester with O,O-diethyl phosphoro- thioate	50 O. 50 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$	I			I	I
90	25775	Carbamic acid, (2-mer= captoethyl)-, 2-chloro= ethyl ester, S-ester with O, O-dimethyl phos= phorodithioate	100 O. 100 Sc.	N 100		I I	I	I	I I
91	25802	Carbamic acid, (2-mer= captoethyl)-, ethyl ester, S-ester with O,O-diethyl phosphoro= dithioate	50 O. 50 Sc.	2.5 10	I I			I	I I
92	25774	Carbamic acid, (2-mer=captoethyl)-, ethylester, S-ester with O,O-diethyl phosphorothioate	100 O. 100 Sc.	5 5		I I	I	I	I I
93	25801	Carbamic acid, (2-mer= captoethyl)-, ethyl ester, S-ester with O, O-dimethyl phos= phorodithioate	100 O. 100 Sc.	50 50		T	100 50 ^b	50 50	100 I
94	27350	Carbamic acid, (meth= oxyacetyl) methyl-, o-isopropoxyphenyl ester	100 O. 100 Sc.	50 100		I	I	I	I
95	25909	Carbamic acid, methyl-, 2-allyl-5-methoxy= phenyl ester	100 O. 100 Sc.	N 100		-	I I	I I	I
96	25913	Carbamic acid, methyl-, m-[(allyloxy)methoxy]	100 O. 100 Sc.	N 100		-	I I	I 100	I
97	25906	phenyl ester Carbamic acid, methyl-, m-(allyloxy) phenyl	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 50 \end{array}$		-	I I	100 50	I
98	25912	ester Carbamic acid, methyl-, o-(allyloxy)phenyl ester	100 O. 100 Sc.	50 100		I	I I	I 50	I I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			III ab ant	*	Lo	west dosage	(mg./kg.)-	_	
	T13.700		Highest - dosage			Causin	g 100% kill	of	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	L	arvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
99	27041	Carbamic acid, methyl-, benzo[b]thien-4-yl ester	100 O. 100 Sc.	50 25		I I	I	$^{\rm I}_{25}$	I
100	25916	Carbamic acid, methyl-, m-(butoxymethoxy)=	100 O. 100 Sc.	N N		I I	I I	I I	I I
101	27128	phenyl ester Carbamic acid, methyl-, 5-sec-butyl-2-chloro- phenyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 5 \end{array}$		I	I I	I	I
102	25911	Carbamic acid, methyl-, 5-tert-butyl-2-chloro= phenyl ester	100 O. 100 Sc.	50 50		I I	I	I	I
103	27212	Carbamic acid, methyl-, o-sec-butylphenyl ester	100 O. 100 Sc.	100 100		I	I	I	I
104	25759-X	Carbamic acid, methyl-, sec-butylphenyl ester (mixture of isomers)	50 O. 50 Se.	10 10	I			I	I
105	27098	Carbamic acid, methyl-, 5-tert-butyl-m-tolyl ester	100 O. 100 Sc.	N 100		I	I I	I	I
106	25763	Carbamic acid, methyl-, 6-chloro-m-cumenyl ester	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 100 \end{array}$	$\begin{smallmatrix} 50\\100\end{smallmatrix}$			50 I	I 100
107	27382	Carbamic acid, methyl-, 4-chloro-2, 3-dihydro- 2, 2-dimethyl-7-benzo- furanyl ester	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$		I	I	I	I I
108	25917	Carbamic acid, methyl-, 2-chloro-5-(2-propynyl= oxy) phenyl ester	100 O. 100 Sc.	100 N		I I	I I	I	I
109	25736	Carbamic acid, methyl-, 6-chloro-3,4-xylyl ester	100 O. 100 Sc.	100 10	I I			I	I
110	25670	Carbamic acid, methyl-, o-cumenyl ester	100 O. 100 Sc.	100 N	I I			$\frac{100}{25^{b}}$	Ī
111	25928	Carbamic acid, methyl-, 2-(m-cumenyloxy) ethyl ester	100 O. 100 Sc.	N 100		I I	I I	I	I
112	27214	Carbamic acid, methyl-, o-2-cyclopenten-1- ylphenyl ester	100 O. 100 Sc.	N 100		I I	I	I	I
113	27213	Carbamic acid, methyl-, o-cyclopentylphenyl	100 O. 100 Sc.	100 100		I I	I I	I	I
114	27300	ester Carbamic acid, methyl-, m-cym-5-yl ester	100 O. 100 Sc.	N N		I I	I I	I I	I I
115	27300-a	Carbamic acid, methyl-, m-cym-5-yl ester	50 O. 50 Sc.	25 25		Ĩ	Î I	I I	25 50
116	27109	Carbamic acid, methyl-, 4-(diallylamino)- 3,5-xylyl ester	100 O. 100 Sc.	50 100		I I	I I	Î I	I I
117	27164	Carbamic acid, methyl-, 2,3-dihydro-2,2- dimethyl-7-benzo- furanyl ester	100 O. 100 Sc.	$\begin{smallmatrix} 5\\2.5\end{smallmatrix}$		I	I I	I I	5 ^ь 5 ^ь

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		Lo	west dosage	(mg./kg.)-	_	
т.	TINIM		dosage			Causin	g 100% kill	l of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	L	arvae of—		4 1 1	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
118	27324	Carbamic acid, methyl-, 2,3-dihydro-2-methyl- 7-benzofuranyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		I	10 ^b 25 ^b	I 10	25 25
119	27383	Carbamic acid, methyl-, 2,3-dihydro-2,2,4- trimethyl-7-benzo- furanyl ester	100 O. 100 Sc.	5 5		I	I	I	I
120	25780	Carbamic acid, methyl-, 3,5-diisopropylphenyl ester	100 O. 100 Sc.	N N	I I			I	I
121	27566	Carbamic acid, methyl-, m-[[(dimethylamino)= methylene]amino]phenyl ester, hydrochloride	100 O. 100 Sc.	1 1ª		I	I	I	I
122	27466	Carbamic acid, methyl-, o-(dimethylamino) phenyl ester	100 O. 100 Sc.	100 100		I	I	$_{50}^{ m I}$	100 100
123	27338	Carbamic acid, methyl-, 6-(dimethylamino) thymyl ester	100 O. 100 Sc.	50 50		I I	I I	I	I
124	25784	Carbamic acid, methyl-, 4-(dimethylamino)- m-tolyl ester	100 O. 100 Sc.	50 50		I	I I	I	50 ^b 50
125	25766	Carbamic acid, methyl-, 4-(dimethylamino)- 3,5-xylyl ester	100 O. 100 Sc.	$\frac{25}{50}$	$\frac{25^{b}}{50^{b}}$			I	I
126	27385	Carbamic acid, methyl-, 2,2-dimethyl-8-chroma= nyl ester	20 O. 20 Sc.	5 5		I	I I	I I	I
127	27410	Carbamic acid, methyl-, o-(4,5-dimethyl-1,3- dioxolan-2-yl)phenyl ester	100 O. 100 Sc.	100 10		I 25	$_{25}^{ m I}$	I	$\begin{array}{c} 100 \\ 25 \end{array}$
128	27392	Carbamic acid, methyl-, ester with methyl 4-hydroxy-2,6-dimethyl- carbanilate	100 O. 100 Sc.	100 100		I	I I	50 25	I
129	27393	Carbamic acid, methyl-, ester with methyl 4-hydroxy-2-isopropyl= carbanilate	100 O. 100 Sc.	1ª 5		I	I I	I	I
130	27156	Carbamic acid, methyl-, ester with salicylalde= hyde, diethyl mercaptal	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 5 \end{array}$		I	I	I	I
131	9519	Carbamic acid, methyl-, ethyl ester	100 O.	N N		I	I I	I	I I
132	25671	Carbamic acid, methyl-, o-isopropoxyphenyl ester	100 Sc. 100 O. 100 Sc.	50 25	I 25			I I	$50 \\ 25$
133	25659	Carbamic acid, methyl-, 2-mercaptoethyl ester, S-ester with O,O- diethyl phosphorodi= thioate	100 O. 100 Sc.	25 25	25 25			$_{25}^{\rm I}$	50 ^b I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			III about		Le	owest dosage	e (mg./kg.)-	_	
T .	ENIO		Highest - dosage			Causin	ıg 100% kil	l of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
134	25658	Carbamic acid, methyl-, 2-mercaptoethyl ester, S-ester with O,O- dimethyl phosphorodi- thioate	100 O. 100 Sc.	N N	50 50			25 50	50 50
135	25967	Carbamic acid, methyl-, 2-[(mercaptomethyl)= thio]ethyl ester, S-ester with O,O-dimethyl phosphorodithioate	100 O. 100 Sc.	25 50			I	I	50 ^ь 50
136	27047	Carbamic acid, methyl-, 2-[(mercaptomethyl)= thio]ethyl ester, S-ester with O-isopropyl O-meth- yl phosphorodithioate	50 O. 50 Sc.	10 10		I	I	I	I
137	25908	Carbamic acid, methyl-, m-(methoxymethoxy)= phenyl ester	100 O. 100 Sc.	50 50		I	I	$\begin{array}{c} 50 \\ 100 \end{array}$	50 100
138	27157	Carbamic acid, methyl-, o-[1-(methoxymethyl)=	100 O. 100 Sc.	100 100		I I	I	I 100	100 I
139	27044	allyl]phenyl ester Carbamic acid, methyl-, 4-methoxy-3,5-xylyl	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		I I	I	I	I
140	27384	ester Carbamic acid, methyl-, 7-methylbenzo[b]=	100 O. 100 Sc.	N 100		I I	I	I I	I
141	27127	thien-4-yl ester Carbamic acid, methyl-, m-(1-methylbutyl)=	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		I I	I	I I	I
142	27564	phenyl ester Carbamic acid, methyl-, o-(4-methyl-1,3- dioxolan-2-yl)phenyl ester	100 O. 100 Sc.	100 50		I 50	100 50	I 25	100 50
143	27407	Carbamic acid, methyl-, 2-methyl-8-quinolyl	100 O. 100 Sc.	N 100		I	I	$\frac{100}{50}$	I
144	27557	ester Carbamic acid, methyl-, 2-methyl-8-quinolyl	100 O. 100 Sc.	100 N		-	I	100 100	I
145	25726	ester, sulfate Carbamic acid, methyl-, 4-(methylthio)-3,5-	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$	$\begin{array}{c} 10 \\ 100 \end{array}$			I	I
146	25939	xylyl ester Carbamic acid, methyl-, 2-(1-naphthyloxy)=	100 O. 100 Sc.	N 100		I I	I	I	I
147	25915	ethyl ester Carbamic acid, methyl-, m-[(2-propynyloxy)=	100 O. 100 Sc.	N 100		-	I	100 100	I
148	25914	methoxy]phenyl ester Carbamic acid, methyl-, o-[(2-propynyloxy)=	100 O. 100 Sc.	100 N		-	I	50 50	100 I
149	25732	methoxy phenyl ester Carbamic acid, methyl-, m-(2-propynyloxy)= phenyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 5 \end{array}$	I			I I	I I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest		Ι	owest dosage	(mg./kg.)-		
т.	133700		Highest - dosage			Causin	g 100% kil	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		4.1.1.	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
150	25810	Carbamic acid, methyl-, o-(2-propynyloxy)= phenyl ester	100 O. 100 Sc.	50 50	50 50			25 25	50 50
151	27253	Carbamic acid, methyl-, 5, 6, 7, 8-tetrahydro-1-	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 50 \end{array}$		-	I I	I 100	100 I
152	27096	naphthyl ester Carbamic acid, methyl-, 2,3,5-trimethylphenyl	100 O. 100 Sc.	100 100		T	I I	I	I I
153	25843	ester Carbamic acid, methyl-, 3,4,5-trimethylphenyl	100 O. 100 Sc.	100 N	$^{100^{\rm b}}_{\rm I}$			I 50	100 ^ь І
154	27352	ester Carbamic acid, methyl= (phenoxyacetyl)-, m-sec-	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 25 \end{array}$		-	I I	I	I
155	25663	butylphenyl ester Carbamic acid, propyl-, 2-hydroxyethyl ester, O-ester with O,O-diethyl	100 O. 100 Sc.	N 100	I			I	I I
156	33210	phosphorothioate Carbamic acid, propyldi= thio-, phenyl ester	100 O. 100 Sc.	N 50			I I	I I	I I
157	25666	Carbanilic acid, 2-mer= captoethyl ester, S-ester with O,O-diethyl	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$	I I			I	Ī
158	6187	phosphorothicate Carbanilic acid, N-ethyl-, ethyl ester	100 O. 100 Sc.	N N		-	I I	I I	I I
159	31544	Carbanilic acid, o-methyle dithio-, methyl ester	100 O. 100 Sc.	N N		- Î	I I	I I	I
160	60130	Carbanilide, 4, 4'-dinitro-, compound with 4,6- dimethyl-2-pyrimidinol	500 O. 500 Sc.	N 500		т	I	I	I
161	25579	Carbonic acid, trithio-, cyclic ester with 2,3-quinoxalinedithiol	100 O. 100 Sc.	N N	I I			I	I
162	25389	3-Carene	100 O. 100 Sc.	N			I I	Ī	I I
163	22053	Cinnamic acid, β-hydroxy-, ethyl ester,	100 Sc. 100 O. 100 Sc.	${f N}\ {f 25}\ {f 2.5}$	I I			I I I	I I
164	26191	diethyl phosphate Copper, [hexadecachloro=	100 O.	N	I			Ī	Ī
165	26192	phthalocyaninato(2-)}- Copper, [phthalocyani=	100 Sc. 100 O.	N N	Ī			Ĭ	I Į
166	26294	nato(2-)]- o-Cresol, 6- <i>tert</i> -butyl-	100 Sc. 100 O. 100 Sc.	N N N	I I I			I I I	I I I
167	25937	Crotonic acid, 2,4-dini= trophenyl ester	100 O. 100 Sc.	50 N		. I	I I	I I	I I
168	25699	Crotonie acid, 2-chloro-3- hydroxy-, \alpha-methyl= benzyl ester, dimethyl phosphate	100 O. 100 Sc.	N N	I I			I I	I I
169	25695	Crotonic acid, 2-chloro- 3-hydroxy-, m-nitro= benzyl ester, dimethyl phosphate	100 O. 100 Sc.	N 100	I			I I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Uighoot		1	Lowest dosage	(mg./kg.)-	_	
т.	ENIM		Highest dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		4.1.14	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
170	25696	Crotonic acid, 2-chloro- 3-hydroxy-, p-nitro- benzyl ester, dimethyl phosphate	100 O. 100 Sc.	N 50	I I			I	I I
171	25628	Crotonic acid, 3-hydroxy-, benzyl ester, diethyl phosphate	50 O. 25 Sc.	10 10	I			I	I
172	25629	Crotonic acid, 3-hydroxy-, benzyl ester, O-ester with O,O-dimethyl phosphorothioate	100 O. 100 Sc.	N N	I			I	I I
173	25632	Crotonic acid, 3-hydroxy-, benzyl ester, methyl	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$	I			I	I
174	25626	phenyl phosphate Crotonic acid, 3-hydroxy-, o-chlorobenzyl ester, dimethyl phosphate	100 O. 50 Sc.	N 50	I			I	I I
175	25624	Crotonic acid, 3-hydroxy-, cyclohexyl ester, dimethyl phosphate	100 O. 50 Sc.	N 50	I I			I	I
176	25625	Crotonic acid, 3-hydroxy-, cyclohexylmethyl ester, dimethyl phosphate	100 O. 100 Sc.	N 50	I I			I	I I
177	25694	Crotonic acid, 3-hydroxy-, decyl ester, dimethyl phosphate	100 O. 100 Sc.	N 100	I I			I	I I
178	24991	Crotonic acid, 3-hydroxy-, 3,4-dichlorobenzyl ester, dimethyl phosphate	100 O. 100 Sc.	100 50	100 I			I	I
179	25745	Crotonic acid, 3-hydroxy-, 3,4-dimethylbenzyl ester, dimethyl phosphate	100 O. 100 Sc.	N 50	I 50 ^b			I	I
180	25839	Crotonic acid, 3-hydroxy-, α -ethylbenzyl ester,	100 O. 100 Sc.	N 100	I I			I I	I I
181	25633	dimethyl phosphate Crotonic acid, 3-hydroxy-, hexyl ester, dimethyl	100 O. 100 Sc.	N 50	I I			I I	I I
182	24993	phosphate Crotonic acid, 3-hydroxy-, methyl ester, p-chloro=	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 1 \end{array}$	I I			I I	I I
183	25572	phenyl ethyl phosphate Crotonic acid, 3-hydroxy-, methyl ester, 2-chloro= propyl isopropyl phosphate	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$	I			I I	I
184	25513	Crotonic acid, 3-hydroxy-, methyl ester, 2,4- dichlorophenyl ethyl phosphate	100 O. 100 Sc.	N 100	100 ^I			I 100	I I
185	25571	Crotonie acid, 3-hydroxy-, methyl ester, 2,3- diehloropropyl isopropyl phosphate	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 25 \end{array}$	I			I I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			III who at		I	Lowest dosage	(mg./kg.)-	_	
Τ.	TIME.		$egin{array}{c} ext{Highest} & - \ ext{dosage} \end{array}$			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		4.1.1.	Nympha
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
186	25746	Crotonic acid, 3-hydroxy-,	100 O. 100 Sc.	N 25	I I			I	I
187	25747	Crotonic acid, 3-hydroxy-, 2-methyl-5-nitrobenzyl ester, dimethyl phosphate	100 O. 100 Sc.	N 10	I			I	I I
188	25578	Crotonic acid, 3-hydroxy-, m-nitrobenzyl ester, dimethyl phosphate	25 O. 25 Sc.	$\frac{25}{25}$	I I			I	I
189	25577	Crotonic acid, 3-hydroxy-, p-nitrobenzyl ester, dimethyl phosphate	50 O. 10 Sc.	$\begin{array}{c} 25 \\ 1 \end{array}$	I			I I	I
190	25630	Crotonic acid, 3-hydroxy-, p-phenylenedimethylene ester, bis(dimethyl phosphate)	50 O. 25 Sc.	$\frac{50}{25}$	I I			I	I
191	25690	Crotonic acid, 3-hydroxy- 2-methyl-, ethyl ester,	100 O. 50 Sc.	$\begin{array}{c} 100 \\ 25 \end{array}$	I			I I	I I
192	26279	diethyl phosphate 1,3-Cyclobutanediol, 2,2,4,4-tetramethyl-	100 O. 100 Sc.	N N	I			I	I
193	15918	1,3-Cyclobutanedione, tetramethyl-	100 O. 100 Sc.	N N	I			I I	I I
194	26330	Cyclohexanecarboxylic acid, 3-formyl-, ethyl ester	100 O. 100 Sc.	N N	I			I	I
195	26300	1,4-Cyclohexanedimeth- anol (70 percent <i>trans</i>)	100 O. 100 Sc.	N N	I			I I	I I
196 197	26281 27085	1,2-Cyclopentanediol, trans- Cyclopropane, 1,1-di=	100 O. 100 Sc. 100 O.	N N N	I I	I	I	I I I	I I I
191		chloro-2,2-bis(p- chlorophenyl)-	100 Sc.	N		_ I	Î	I	I
198	27339	Cyclopropanecarboxylic acid, 2,2-dimethyl-3-(2-methylpropenyl)-, ester with N-(hydroxy=methyl)-1-cyclohexene-1,2-dicarboximide	100 O. 100 Sc.	N 100		I I	Ï	I	I I
199	23392	1,4:5,8-Dimethanonaph- thalene, 1,2,3,4,6.9, 10,10-octachloro-1,4, 4a,5,6,7,8,8a- octahydro-	100 O. 100 Sc.	N N	I			100 ^ь I	I
200	26283	m-Dioxane, 4,4-dimethyl-	100 O. 100 Sc.	N N	I I			I I	I I I
201 202	26282 26302	m-Dioxane, 4,5-dimethyl- m-Dioxane,	100 O. 100 Sc. 100 O.	N N N	I I I			I I I	I I
203	26284	m-Dioxane, 4,4,5-trimethyl- m-Dioxane-5-methanol,	100 O. 100 Sc. 100 O.	N N	I I			Î I	I I
204	19473	4,4-dimethyl- 1,6-Dioxaspiro[4.4]= nonane	100 Sc. 100 O. 100 Sc.	N N 100	Î I I			I I I	Î I I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: L - 4		Lo	owest dosage	(mg./kg.)-	_	
_			Highest - dosage			Causin	g 100% kill	of—	7
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	L	arvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
205	27274	Disulfide, butyl	100 O.	50		Ī	Ĩ	Ĩ	Ĩ
206	28024	1,2,2-trichloroethyl Disulfide, 1,2-dichloro=	100 Sc. 100 O.	$^{25}_{ m N}$		I	I I	I	I I
007	05000	vinyl methyl	100 Sc.	100		Ţ	Î	I	Ţ
207	27022	Disulfide, diethoxyphos= phinyl 1-ethoxy-N- phenylformimidoyl	25 O. 25 Sc.	$ \begin{array}{c} 25 \\ 5 \end{array} $		I	I	I	I I
208	27027	Disulfide, diethoxyphos= phinyl 1-ethoxy-N-	25 O. 25 Sc.	$\begin{array}{c} 25 \\ 5 \end{array}$		I I	I I	I	I I
209	27026	propylformimidoyl Disulfide, diethoxyphos= phinyl 1-isopropoxy-N-	25 O. 25 Sc.	$\begin{array}{c} 25 \\ 10 \end{array}$		I	I I	I	I
210	27025	phenylformimidoyl Disulfide, diethoxyphos= phinyl 1-methoxy-N-	50 O. 50 Sc.	50 10		I	I I	I I	I I
211	16894	phenylformimidoyl Dithiopyrophosphoric acid, 0,0,0,0-	100 O. 100 Sc.	N N	I I			I	I
212	25087	tetrapropyl ester 6,10-Dodecadien-1-yn-3-	100 O.	N	I			ī	I
212	20001	ol, 3,7,11-trimethyl-	100 Sc.	Ň	100			Î	Î
213	26661	Dodecanamide,	100 O.	100				Ī	Ĩ
914	25791-X	N, N-dimethyl-	100 Sc.	100	-			I	I
214	23/91-A	2-Dodecanone, polychlorinated	100 O. 100 Sc.	N N	The state of the s			I	Ĭ
215	10519	1,6,10-Dodecatrien-3-ol,	100 O.	Ñ	*			Î	Î
210	25000	3,7,11-trimethyl-	100 Sc.	N				Ĩ	Ĩ
216	25089	1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, acetate	100 O. 100 Sc.	N N	-			I	I
217	26646-X	Ethane, (tallowamino)- N, N-dipoly(ethylene=	100 O. 100 Sc.	N 100	I			I	I
218	27345	oxy)- Ethane, 1,1,1-trichloro-	100 O.	N		I	I	I	I
		2,2-bis(p-chlorophenyl)- labeled with D	, 100 Sc.	N		Ĩ	Ī	Ī	I
219	26018	Flavone, 3,3',4',5,7-	100 O.	N	$100^{ m b}$			I	I
220	27335	pentahydroxy- Formamidine, N'-(4-	100 Sc. 100 O.	N N	1005	I	Ī	Ì	İ
		chloro-o-tolyl)-N, N- dimethyl-	100 Sc.	100		Î	Ī	I	Ι
221	27567	Formamidine, N'-(4- chloro-o-tolyl)-N, N- dimethyl-, hydrochloride	100 O. 100 Sc.	100 100		I	I	I	I
222	17333	2-Furaldehyde, 5-nitro-,	100 O.	100	I			I	I
223	23602	semicarbazone 2-Furanmethanediol,	100 Sc. 100 O.	N 100	I I			I	I
		5-nitro-, diacetate	100 Sc.	100	Î			Ĩ	I
224	23056	2-Furoic acid, ethyl ester	100 O.	N				Ī	Ĩ
995	26259	Clutarimida 2 19 (2 5	100 Sc. 100 O.	N 10a				Ī	I
225	26258	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclo-hexyl)-2-hydroxy=ethyl]-, oxime	100 O. 100 Sc.	10a 100	I			I	I I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			II: who are		Lo	west dosage	(mg./kg.)-	-	
T.	TINE		Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—		A dula	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
226	27155	Glycine, N -carboxy-, N -(1,1a,3,3a,4,5,5a,5b,6-decachloroocta=hydro-1,3,4-metheno-1 H -cyclobuta[cd]=pentalen-2-yl) ethyl ester	100 O. 100 Sc.	100 100		I	I I	I I	25 25
227	25716	Glycine, N-(3-hydroxy= crotonoyl)-, ethyl ester, dimethyl phosphate	100 O. 100 Sc.	N 100	$\begin{array}{c} 10 \\ 25 \end{array}$			100 50	I 100
228	26708	Glyoxylic acid, phenyl-	100 O. 100 Sc.	N 50	I I			I I	I I
229	7037	Glyoxylic acid, phenyl-, methyl ester	100 O. 100 Sc.	N N	I I			Ī	I I I
230	25920	Heptanamide, $N, N, 2$ -triethyl-	100 O. 100 Sc.	N N	I			I	I
231	25495	4-Heptanone, 1-phenoxy-	100 O. 100 Sc.	N N	Ī I			Ī	Ī I
232	26305	Hexadecanoic acid, 9,10,16-trihydroxy-, erythro-	100 O. 100 Sc.	N N	I			I	I
233	26306	Hexadecanoic acid, 9,10,16-trihydroxy-, methyl ester, erythro-	100 O. 100 Sc.	N 100	I			I	I
234	26291	Hexanamide,	100 O.	N	Ţ			I	I
235	26365	N, N, 2-triethyl- 1-Hexanol, 2, 3-epoxy-	100 Sc. 100 O.	N N	I I			I I	I I
236	25498	2-ethyl- 2-Hexanone, 1-phenoxy-	100 Sc. 100 O.	N N	I I			Ĭ	I I
237	26287	Hexylamine, 2-ethyl-	100 Sc. 100 O.	100 N	I I			I I	I I I
238	25619	Hydrazine, 1-(1-naphthyl)		N 100	I I			I I	I I
239	28026	2-sulfinyl- Hydroxylamine,	100 Sc. 100 O.	N 100	I	<u>I</u>	I	I	I
240	26780	N, N-diethyl- Isophthalamide,	100 Sc. 100 O.	100 N	Ī	I	I	I	I I
		N, N, N', N'-tetraethyl-	100 Sc.	N	I			Ī	I
241	32957	Maleanilic acid, 2',4'-dimethyl-	100 O. 100 Sc.	N 100	I			I	I
242	26044	p-Menthane,	100 O.	N	I			Î	Ī
243	25966	1,2:8,9-diepoxy- Methanesulfenic acid,	100 Sc. 100 O.	N 50	I	I	Ī	I	I
		triphosphono-, S-anhydride with thiocyanic acid, hexaethyl ester	100 Sc.	25		Ī	Ī	Ī	I
244	27254	Methanesulfonamide, N-(p -chlorophenyl) - N-[(1,1,2,2-tetra= chloro-2-fluoroethyl)= thio -	100 O. 100 Sc.	50 25		I	I	I	I
245	26396	Methanesulfonic acid,	100 O.	N		Ī	Ĭ	Ī	I I
		ethyl ester	100 Sc.	100		I	I	I	1

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: back		I	owest dosage	e (mg./kg.)-		
_			Highest dosage			Causir	ng 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
246	25700-X	6,9-Methano-3 <i>H</i> -2,4- benzodioxepin, 6,7,8,9, 10,10-hexachloro-1,5, 5a,6,9,9a-hexahydro- 3-methyl-, chlorinated to contain 70 percent	100 O. 100 Sc.	10 100	I			I	Ī
247	26046	total chlorine 4,7-Methanoindan, 1,2:5,6-diepoxy-3a,4, 5,6,7,7a-hexahydro-,	100 O. 100 Sc.	N N	I I			I	I
248	27313	endo- 4,7-Methanoindan, 1,4,5,6,7,8,8-hepta= chloro-3a,4,7,7a- tetrahydro-	100 O. 100 Sc.	N N		I I	I	I	I
249	25604	4,7-Methanoindan, 1(or 2),4,5,6,7,8,8- heptachloro-3a,4,7,7a-	100 O. 100 Sc.	N N	I			I	I
250	27005	tetrahydro- 4,7-Methanoindan, 1,2,3,4,5,6,7,8,8- nonachloro-3a,4,7,7a- totrohydro	100 O. 100 Sc.	N 100			I	I	I
251	25603	tetrahydro- 4,7-Methanoindan, 1,2,4,5,6,7,8,8- octachloro-2,3-epoxy-	100 O. 100 Sc.	100 N	I			I	I
252	25963	3a, 4, 7, 7a-tetrahydro- 4, 7-Methanoindene-5- carbamic acid, 3a, 4, 5, 6, 7, 7a-hexahydro-, mercaptomethyl ester, S-ester with 0, 0-diethyl	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$		-	I	I	I
253	25545	phosphorodithioate 4,7-Methanoisobenzo= furan, 1,3,4,5,6,7,8,8- octachloro-1,3,3a,4,7, 7a-hexahydro-	100 O. 100 Sc.	1 10		- I	I	I	I
254	23872	Methanol, phosphinylidynetri-	100 O. 100 Sc.	N N	I I			I	I I
255	27017-X	1,4-Methanonaphthalene, 1,2,3,4,9,9-hexa= chloro-1,4,4a,5,6,7,8, 8a-octahydro-, chlori- nated to contain 71.5 percent total chlorine	100 Sc. 100 C. 100 Sc.	50 100		- I - I	I I	I I	I I
256	25719	1,3,4-Metheno-1 <i>H</i> - cyclobuta[<i>cd</i>]pentalene, dodecachlorooctahydro-	100 O. 100 Sc.	N N		_ I	I	I	I
257	27154	1,3,4-Metheno-1 <i>H</i> -cyclobuta[<i>cd</i>]pentalene-2-levulinic acid, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-2-hydroxy-, ethyl ester	100 O. 100 Sc.	100 100		-	I	100 I	$\begin{array}{c} 25 \\ 25 \end{array}$
258	27153	nydroxy-, ethyl ester $1,3,4$ -Metheno- $1H$ - cyclobuta[cd]pentalen- 2-ol, $1,1a,3,3a,4,5,5$, $5a,5b$, 6-deeachloro- octahydro-2-methyl-	100 O. 100 Sc.	100 100			I	I	I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		I	owest dosage	(mg./kg.)-		
Thomas	ENT		dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		A dult	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
259	26172	Methyl trisulfide	100 O.	N	I			I	I
0.00	05767	4 Manubalinaaastanitrila	100 Sc. 100 O.	$^{ m N}_{25}$	I I			I	I I
260	25767	4-Morpholineacetonitrile, α -methyl-	100 O. 100 Sc.	$\frac{25}{50}$	Ĭ			I	Í
261	25665	4-Morpholinecarboxylic acid, 2-hydroxyethyl ester, O-ester with O,O-diethyl phosphorothioate	100 O. 100 Sc.	100 100	100 100			Î I	I I
262	26698	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'- dimethyl-4,4'-bipheny= lylene) bis(azo) bis[5- amino-4-hydroxy-,	100 O. 100 Sc.	N N	I			I	I
263	26492	tetrasodium salt 1-Naphthalenesulfonic acid, 3,6-dinitro-,	100 O. 100 Sc.	N N	I			I	I
264	18423	sodium salt 2-Naphthoic acid, 4-(3,4- dihydroxphenyl)- 1,2,3,4-tetrahydro- 6,7-dihydroxy-3-	100 O. 100 Sc.	100 N	I			I	I I
265	26207-X	(hydroxymethyl)-, γ-lactone, β-isomer National Sticker, 40 per- cent mixture of ether- linked & cyclic acetal derivatives of sucrose in	100 O. 100 Sc.	N N	I			I	I
266	25875	60 percent methanol Norbornane, pentachloro- 3-(2,2-dichlorocyclo=	100 O. 100 Sc.	100 N		_ I	I I	I	I I
267	25962-X	propyl)-2,2-dimethyl- 2-Norbornanecarbonitrile, 5(or 6)-chloro-6(or 5)-oxo-, O-(methylcar=	50 O. 50 Sc.	$\begin{array}{c} 5 \\ 25 \end{array}$	I			I	I
268	26424	bamoyl) oxime, endo- 2-Norbornanecarboxylic acid, 5,6-epoxy-, ethyl ester, endo-	100 O. 100 Sc.	N N	I I			I	I
269	26056	2-Norbornanecarboxylic acid, 6-formyl-, ethyl ester	100 O. 100 Sc.	N N	I I			I	I
270	23393	2-Norbornene, 5-(bromo= methyl)-1,2,3,4,7,7-	100 O. 100 Sc.	100 100		- I	I I	I	I
271	27053	hexachloro- 2-Norbornene, 1,2,3,4,7, 7-hexachloro-5,6-bis (chloromethyl)-	100 O. 100 Sc.	N 100		_ I	I I	I	I
272	26239	2-Norbornene, 1,2,3,4,7, 7-hexachloro-5-[(2,4-dinitrophenoxy)methyl]-	100 O. 100 Sc.	N N	I			I	I
273	27256-X	amtrophenoxy)methylj- 2-Norbornene, 1,2,3,4,7, 7-hexachloro-5-(2,2,3, 3-tetrafluorocyclo- butyl)-, 6 percent powder	100 O. 100 Sc.	N N		- I - I	I	I I	I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 1 .		I	Lowest dosage	(mg./kg.)-	_	
			Highest - dosage			Causin	g 100% kill	of	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—			Nymphal
			method of administration	to guinea pig	Serew- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
274	26240	5-Norbornene-2,3-dicarb= oximide, 1,4,5,6,7,7- hexachloro-N-pentyl-	100 O. 100 Sc.	N N	I I			I I	I
275	26238	5-Norbornene-2, 3-dicarb= oxylic acid, 1,4,5,6, 7,7-hexachloro-, diallyl ester	100 O. 100 Sc.	N N	I			I	I
276	8981	5-Norbornene-2-methanol	100 O.	N	Ţ			I	I
277	25701-X	5(or 2)-Norbornene-2- methanol, 1,4,5,6,7,7- hexachloro-3-[(2- hydroxy-1-methyl- ethoxy)methyl]-, chlorinated to contain 65 percent total chlorine	100 Sc. 100 O. 100 Sc.	N 25 100	I I I			I I	I I I
278	3291	Octadecanamide,	100 O.	N	Ĭ			Ĩ	Ī
279	26328	N, N-dimethyl- Octadecanoic acid, 9, 10-	100 Sc. 100 O.	N N	Ī			Ī	Ī
280	26645	epoxy-, allyl ester 9-Octadecenylamine	100 Sc. 100 O.	N N	I I			I I	I
281	5734	9-Octadecenylamine,	100 Sc. 100 O.	100 N	I I			I I	I I
		N , N -dimethyl-	100 Sc.	N	$ar{ ext{I}}$			I	I
282	26660-X	Octanamide, N, N- dimethyl-(50 percent), mixture with related amides	100 O. 100 Sc.	N 50	I			I	I
283	26663-X	Oleamide, N, N-dimethyl- (80 percent), mixture with related amides	100 O. 100 Sc.	N 100	I I			I I	I
284	26353	7-Oxabicyclo[4.1.0] heptane, 3-(epoxy=	100 O. 100 Sc.	N N	I I			I	I
285	26045	ethyl)- 7-Oxabicyclo[4.1.0]	100 O.	N	I			I	I
286	26364	heptane, 3-vinyl- 7-Oxabicyclo[4.1.0]	100 Sc. 100 O.	100 N	I I			I	I I
		heptane-3-carbonitrile	100 Sc.	N	$ar{\mathbf{I}}$			Ĩ	I
287	26366	7-Oxabicy clo[4.1.0] heptane-3-methanol, 4-methyl-, acetate	100 O. 100 Sc.	N N	I			I	I
288	25951	Oxalic acid, 1,2-dithio-, bis(anhydrosulfide) with ethylxanthic acid	100 O. 100 Sc.	100 100		· · · · · · · · ·	I I	I I	I
289	25525	1-Oxaspiro[4.4]nona-6,8- diene, 2,3,6,7,8,9- hexachloro-	100 O. 100 Sc.	N N	I I			I	I
290	25353	1,3-Oxathiolan-2-one	100 O.	100			Ĭ	Ĭ	Ţ
291	26329-X	Pentane, 1,2(and 2,3)-	100 Sc. 100 O.	N N	I	I	I	I I	I
292	24259	epoxy-2, 4, 4-trimethyl-	100 Sc.	N	I			I	I I
232	212J J	1-Penten-3-one, 1-(2,6,6- trimethyl-1-cyclohexen- 1-yl)-	100 O. 100 Sc.	N 100	I			Ī	I
293	26292	Phenol, o-tert-butyl-	100 O. 100 Sc.	N N	I I			I I	I I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 1 4		L	owest dosage	(mg./kg.)-	_	
			Highest - dosage			Causin	g 100% kill	of—	
I tem no.	ENT no.	Chemical	(mg./kg.) and	Lethal]	Larvae of—		A 1 1	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
294	25569	Phenol, 2,6-di-tcrt-butyl-	100 O.	50	Ĩ			25 ^b	Ī
295	25992	4-nitro- Phenol, 2,4-dichloro-,	100 Sc. 100 O.	N N	I	. I	Ī	I	I I
one	95790	methanesulfonate	100 Sc.	50			I	Ţ	I I
296	25720	Phenol, pentachloro-, carbanilate	100 O. 100 Sc.	100 50	I			I	Ī
297	26327	Phenol, (1-propan-3-	100 O.	N	I			Ī	I
200	97000	ylidene) tri-	100 Sc.	N	I	т	-	Ī	Ţ
298	27008	Phosphinic acid, [sulfonyl= bis (dichloromethylene)] bis[ethyl-, diethyl ester		50 100		-	I	I	I
299	25947	Phosphonic acid, [(p-chlorophenyl) sulfonyl]-, O,O-diethyl	100 O. 100 Sc.	N 100		I I	I I	I	I
300	25601	ester Phosphonic acid, (2,2- dichloro-1-hydroxy= vinyl)-, dimethyl ester, acetate	100 O. 100 Sc.	N N	I		_	I	I
301	25851	Phosphonic acid, ethyl-, ethyl ester, ester with p-hydroxybenzamide	100 O. 100 Sc.	$\substack{2.5 \\ 2.5}$	$\substack{2.5\\2.5}$			I	I
302	25850	Phosphonic acid, ethyl-, ethyl p-(methylthio) phenyl ester	100 O. 100 Sc.	$\substack{0.5\\.5}$	$\begin{smallmatrix}1.0\\0.5\end{smallmatrix}$			I I	100 I
303	24419	Phosphonic acid, [merecapto(trimethoxy=phosphoranylidene) methyl]-, dimethyl ester, S-ester with O,O-dimethyl phosphoro=thioate	100 O. 100 Sc.	N 100	50 100			50 100	100 100
304	25708-X	Phosphonic acid, [o(and m)-nitrophenyl]-, diethyl ester (a mixture of isomers)	100 O. 100 Sc.	N N	I			I	I
305	27011	Phosphonic acid, [(phenyl-dithio) methylidyne]tri-, hexaethyl ester		$\frac{5}{2.5}$		I I	I I	I	I I
306	25831	Phosphonodithioic acid, (chloromethyl)-, S-p-chlorophenyl	100 O. 100 Sc.	50 100	I			I	I
307	25833	O-isopropyl ester Phosphonodithioic acid, (chloromethyl)-, S-p-chlorophenyl O-propyl ester	100 O. 100 Sc.	N N	I			I	I
308	25835	Phosphonodithioic acid, (chloromethyl)-, O-ethyl S-p-tolyl ester	100 O. 100 Sc.	N 100	I I			I	I I
309	25834	Phosphonodithioic acid, (chloromethyl)-, O-isopropyl S-p-tolyl ester	100 O. 100 Sc.	50 N	I			I	I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			U: who are		\mathbf{L}	owest dosage	(mg./kg.)-		
т.	EMP		Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
310	25731	Phosphonodithioic acid, ethyl-, S-[(2-benzo= thiazolylthio)methyl] O-ethyl ester	100 O. 100 Sc.	5 100	I			I I	I
311	25765	Phosphonodithioic acid, ethyl-, S-p-tert-butyl- phenyl O-ethyl ester	100 O. 100 Sc.	100 N	100 I			I	I
312	27251	Phosphonodithioic acid, ethyl-, S-p-tert-butyl= phenyl O-methyl ester	100 O. 100 Sc.	100 N		-	I I	I	I
313	25723	Phosphonodithioic acid, ethyl-, S-p-chlorophenyl O-ethyl ester	100 O. 100 Sc.	N N		-	I I	I	100 I
314	25770	Phosphonodithioic acid, ethyl-, S-[[(p-chloro= phenyl)thio]methyl] O-ethyl ester	25 O. 50 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$	I			I	I I
315	25800	Phosphonodithioic acid, ethyl-, S-[[(p-chloro= phenyl)thio]methyl] O-methyl ester	50 O. 50 Sc.	50 25	I			I	I
316	27045	Phosphonodithioic acid, ethyl-, S-4-chloro-m- tolyl O-ethyl ester	50 O. 50 Sc.	1 ^a 10		-	I I	I	I I
317	27309	Phosphonodithioic acid, ethyl-S-4-chloro-m-tolyl O-methyl ester	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 100 \end{array}$		-	I I	I	I
318	27298	Phosphonodithioic acid, ethyl-, S-[(2,4-dichloro= phenoxy) methyl] O-ethyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 100 \end{array}$		-	I	I	I
319	27012	Phosphonodithioic acid, ethyl-, O-ethyl ester, S,S-diester with N,N- diethyl-2,2-dimercapto= acetamide	50 O. 50 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		0.5	I I	I	I
320	27114	Phosphonodithioic acid, ethyl-, O-ethyl ester, S-ester with 10-(mer= captoacetyl)= phenothiazine	50 O. 50 Sc.	10 10		-	I I	I I	I
321	27038	Phosphonodithioic acid, ethyl-, O-ethyl ester, S-ester with 2-[(mer= captomethyl) thio]-N- methylacetamide	50 O. 50 Sc.	1° 10		I I	I	I I	I I
322	25796	Phosphonodithioic acid, ethyl-, O-ethyl S-phenyl ester	25 O. 25 Sc.	$\begin{array}{c} 5 \\ 10 \end{array}$	I I			I	I
323	25771	Phosphonodithioic acid, ethyl-, O-ethyl S-o-tolyl ester	50 O. 50 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$	I I			I	I
324	25713	Phosphonodithioic acid, ethyl-, O-ethyl S-p-tolyl ester	100 O. 100 Sc.	50 50	I			I I	I I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT' 1 .		Lo	owest dosage	(mg./kg.)		
			Highest - dosage			Causin	g 100% ki	ll of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	L	arvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	- Adult stable flies	lone star ticks
325	25847	Phosphonodithioic acid, ethyl-, <i>O</i> -ethyl S-2,4-xylyl ester	100 O. 100 Sc.	10 N	50 I			I I	I I
326	27015	Phosphonodithioic acid, ethyl-, O-isobutyl ester, S-ester with N-(mer=	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		-	I	I	I
327	27249	captomethyl) phthalimide Phosphonodithioic acid, ethyl-, O-methyl S-phenyl ester	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 50 \end{array}$		-	I	I I	I
328	27250	Phosphonodithioic acid, ethyl-, O-methyl S-p-tolyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$			$\begin{array}{c} 50 \\ 100 \end{array}$	I I	I
329	27372	Phosphonodithioic acid, methyl-, O-benzo[b]= thien-4-yl S-propyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 50 \end{array}$		-	I	I	I
330	27180	Phosphonodithioic acid, methyl-, S-[[(p-chloro= phenyl) thio]methyl] O-methyl ester	100 O. 100 Sc.	50 100			25 I	100 I	I I
331	27406	Phosphonodithioic acid, methyl-, S-4-chloro-m- tolyl O-ethyl ester	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$		-	I	I	I I
332	27185	Phosphonodithioic acid, methyl-, O-2,4-dichloro- phenyl S-propyl ester	100 O. 100 Sc.	50 N		I I	I	I	I I
333	25995	Phosphonodithioic acid, methyl-, O-methyl ester, S-ester with 2-mer= capto-N, N-dimethyl=	50 O. 50 Sc.	5 10		4.0	5 10	I	5 10
334	25977	propionamide Phosphonodithioic acid, methyl-, O-methyl ester, S-ester with 2-mer= capto-N-methylaceta= mide	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$		4.0	10 10	I	10 10
335	25961	Phosphonodithioie acid, methyl-, O-methyl S-phenyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		50 50	50 100	I 100	I I
336	25846	Phosphonodithioic acid, methyl-, O-methyl S-2,4-xylyl ester	100 O. 100 Sc.	N N	100 I			I I	I
337	27186	Phosphonodithioic acid, methyl-, O-phenyl S-propyl ester	100 O. 100 Sc.	$\frac{25}{50}$		I I	I I	I I	I
338	27227	Phosphonothioic acid, (chloromethyl)-, O-ethyl ester, O-ester with 4-hydroxy-m-anisoni= trile	100 O. 100 Sc.	N 100		I	I I	I I	I
339	27028	Phosphonothioic acid, (chloromethyl)-, O-ethyl ester, O-ester with p-hydroxybenzonitrile	50 O. 50 Sc.	50 N		50 I	50 I	I	I
340	25704	P-nydroxybenzonitrie Phosphonothioic acid, (chloromethyl)-, O-ethyl O-p-nitrophenyl ester	100 O. 100 Sc.	N N	I I			I	I I

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 1 /]	Lowest dosage	(mg./kg.)-	_	
			Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
341	25758	Phosphonothioic acid, (chloromethyl)-, O-isobutyl ester, anhydride with diethyl phosphate	50 O. 50 Sc.	50 5	I			I I	I
342	25757	Phosphonothioic acid, (chloromethyl)-, O-isopropyl ester, anhydride with diisopropyl phosphate	25 O. 25 Sc.	$\begin{array}{c} 25 \\ 2.5 \end{array}$	I I			I	I
343	27373	Phosphonothioic acid, ethyl-, O-(4-bromo- 2,5-dichlorophenyl) O-ethyl ester	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 100 \end{array}$			100 I	50 I	I
344	27374	Phosphonothioic acid, ethyl-, O-(4-bromo- 2,5-dichlorophenyl) O-methyl ester	100 O. 100 Sc.	100 N		-	50 I	50 I	I
345	25869	Phosphonothioic acid, ethyl-, O-2-chloroethyl ester, O-ester with p-hydroxybenzonitrile	5 O. 10 Sc.	$1 \\ 10$	I I			I	I
346	25754	Phosphonothioic acid, ethyl-, O-(2-chloro-4- nitrophenyl) O-ethyl ester	25 O. 25 Sc.	$\begin{matrix} 5 \\ 10 \end{matrix}$	$\begin{array}{c} 5 \\ 25 \end{array}$			I	I
347	25755	Phosphonothioic acid, ethyl-, O-(2-chloro-4- nitrophenyl) O-isopropyl ester	25 O. 25 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$	$\overset{10^{\mathrm{b}}}{\mathrm{I}}$			I I	I
348	25769	Phosphonothioic acid, ethyl-, O-(2-chloro-4- nitrophenyl) O-methyl ester	50 O. 100 Sc.	50 100	$\begin{array}{c} 25 \\ 25 \end{array}$			I I	$\frac{\mathrm{I}}{50^\mathrm{b}}$
349	25795	Phosphonothioic acid, ethyl-, O-p-chlorophenyl O-ethyl ester	100 O. 100 Sc.	50 N	$\frac{25^{\rm b}}{50^{\rm b}}$			25 I	I I
350	25797	Phosphonothioic acid, ethyl-, O-p-chlorophenyl O-propyl ester	100 O. 100 Sc.	50 N	25 I			$^{25}_{\rm I}$	I I
351	25798	Phosphonothioic acid, ethyl-, O-2,4-dichloro= phenyl O-ethyl ester	25 O. 50 Sc.	$\begin{array}{c} 25 \\ 50 \end{array}$	$\frac{10^{b}}{50}$			10 I	I I
352	25799	Phosphonothioic acid, ethyl-, O-2, 5-dichloro= phenyl O-ethyl ester	50 O. 100 Sc.	50 N	$\begin{array}{c} 25 \\ 25 \end{array}$			10 I	I I
353	25725	Phosphonothioic acid, ethyl-, O-2, 4-dichloro= phenyl O-methyl ester	100 O. 100 Sc.	$\frac{100}{100}$	$\frac{10}{25}$			$\begin{array}{c} 25 \\ 25 \end{array}$	I
54	25733	Phosphonothioic acid, ethyl-, O-ethyl O-[2- (ethylthio)-6-methyl-4- pyrimidinyl] ester	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$	I			I	I
355	25702	Phosphonothioic acid, ethyl-, O-[2-(ethylthio)- 6-methyl-4-pyrimidinyl] O-methyl ester	100 O. 100 Sc.	N 100	25 50			I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		L	owest dosage	(mg./kg.)-	_	
T.	TANIAD.		dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal]	Larvae of—		A .llı	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
356	25712	Phosphonothioic acid, ethyl-, O-ethyl O-2,4,5- trichlorophenyl ester	100 O. 100 Sc.	50 N	25 I			50 I	I
357	25852	Phosphonothioic acid, ethyl-, O-methyl ester, O-ester with 7-hydroxy- 4-methylcoumarin	100 O. 100 Sc.	$\substack{2.5 \\ 2.5}$	5 ^ь 5 ^ь			I	I
358	27375	Phosphonothioic acid, methyl-, O-(4-bromo- 2,5-dichlorophenyl) O-isopropyl ester	100 O. 100 Sc.	50 100		-	50 I	50 I	I
359	25785	Phosphonothioic acid, methyl-, O-2-chloroallyl O-p-nitrophenyl ester	50 O. 50 Sc.	10 50	I			I	I
360	25789	Phosphonothioic acid, methyl-, O -2-chloroallyl O - $(\alpha, \alpha, \alpha$ -trifluoro-4- nitro- m -tolyl) ester	100 O. 100 Sc.	100 100	I			I	I
361	25788	Phosphonothioic acid, methyl-, O -4-chlorobutyl O - $(\alpha, \alpha, \alpha$ -trifluoro-4- nitro- m -tolyl) ester	100 O. 100 Sc.	50 50	100 I			100 I	I
362	25714	Phosphonothioic acid, methyl-, <i>O</i> -2,4-dichloro= phenyl <i>O</i> -ethyl ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 100 \end{array}$	25 I			$\begin{array}{c} 50 \\ 100 \end{array}$	I
363	27033	Phosphonothioic acid, methyl-, O-ethyl ester, O-ester with p-hydroxy= benzonitrile	10 O. 10 Sc.	$\frac{2.5}{5}$		_	I I	I	I I
364	25616	Phosphonothioic acid, methyl-, O-ethyl O-[p- (ethylsulfinyl)phenyl] ester	100 O. 100 Sc.	$\frac{2.5}{5}$	$\overset{25}{2.5}$			I	$\begin{array}{c} 100 \\ 25 \end{array}$
365	25617	Phosphonothioic acid, methyl-, O-ethyl O-[p- (ethylsulfonyl)phenyl] ester	50 O. 50 Sc.	$\begin{array}{c} 1.0 \\ 0.1 \end{array}$	I 50			I	I I
366	25615	Phosphonothioic acid, methyl-, O-methyl O-[p- (methylsulfinyl)phenyl] ester	10 O. 10 Sc.	2.5 2.5	$rac{2.5^{ m b}}{2.5^{ m b}}$			I	I
367	25787	Phosphonothioic acid, methyl-, <i>O-p</i> -nitrophenyl <i>O</i> -phenyl ester	50 O. 50 Sc.	1a 10	I			I I	I
368	25786	Phosphonothioic acid, methyl-, <i>O-p</i> -nitrophenyl <i>O</i> -propyl ester	50 O. 50 Sc.	1a 10	I			I I	I I
369	25870	Phosphonothioic acid, methyl-, O-phenyl ester, O-ester with p-hydroxy= benzonitrile	100 O. 100 Sc.	1ª 5	50 50			I	I
370	27343	Phosphonothioic acid, phenyl-, O-(4-bromo- 2,5-dichlorophenyl) O-ethyl ester	100 O. 100 Sc.	100 100			100 I	I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 1		L	owest dosage	(mg./kg.)-	_	
- .	TIVE.		Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
371	25832	Phosphonothioic acid, phenyl-, O-ethyl ester, O-ester with	100 O. 100 Sc.	50 100	25 ^b 50 ^b			15 I	I I
372	25845	p-hydroxybenzonitrile Phosphonotrithioic acid, methyl-, p-chlorophenyl	100 O. 100 Sc.	N N	I			I I	I
373	27192	ethyl ester Phosphoramidic acid, methyl-, 2-chloro-4- tert-pentylphenyl methyl ester	100 O. 100 Sc.	N 100			I I	I	I I
374	25964	Phosphoramidic acid, methyl-, 2,4-dichloro=	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 100 \end{array}$	I I			$_{100}^{\rm I}$	I I
375	24688	phenyl propyl ester Phosphoramidothioic acid, 0-3,4-dichlorophenyl	100 O.	N		100	I	Ι	I
376	27396	O-methyl ester Phosphoramidothioic acid, O, S-dimethyl ester	100 O. 100 Sc.	$\frac{10}{10}$			5 5	5 5	$\begin{array}{c} 25 \\ 10 \end{array}$
377	27398	Phosphoramidothioic acid, O-ethyl S-methyl ester	100 O. 100 Sc.	5 5		. 10	$\begin{array}{c} 25 \\ 25 \end{array}$	Ī	5 5
378	24687	Phosphoramidothioic acid, ethyl-, O-2, 4-dichloro= phenyl O-methyl ester	100 O.	N		. 25	25	50	I
379	24685	Phosphoramidothioic acid, ethyl-, O-3,4-dichloro= phenyl O-methyl ester	100 O.	N		25	10	100	Ι
380	27023	Phosphoramidothioic acid, [ethyl(2-hydroxyethyl) thiocarbamoyl]-, O,O-dimethyl ester	10 O. 10 Sc.	5 5		-	I	I	I
381	27034	Phosphoramidothioic acid, [ethyl(2-hydroxypropyl) thiocarbamoyl]-, O,O-dimethyl ester	25 O. 25 Sc.	$\begin{matrix} 5 \\ 10 \end{matrix}$		I I	I I	I	$\begin{array}{c} 10 \\ 25 \end{array}$
382	27239	Phosphoramidothioic acid, [(2-hydroxyethyl) methylthiocarbamoyl], O,O-dimethyl ester	25 O. 25 Sc.	10 10		-	I I	I	I
383	27032	Phosphoramidothioic acid, [(2-hydroxyethyl) propylthiocarbamoyl]-,	25 O. 25 Sc.	25 10		-	I	I	I
384	27035	O, O-dimethyl ester Phosphoramidothioic acid, [(2-hydroxypropyl)= methylthiocarbamoyl]-,	100 O. 100 Sc.	10 10			50 I	I	$\begin{array}{c} 25 \\ 25 \end{array}$
385	27314	O, O-dimethyl ester Phosphoramidothioic acid, isopropyl-, O-ethyl ester, S-ester with 2-mercapto- N-methoxy-N-methyl=	100 O. 100 Sc.	25 10			50 50	I	$\begin{array}{c} 25 \\ 10 \end{array}$
386	24680	acetamide Phosphoramidothioic acid, methyl-, O-p-chloro= phenyl O-methyl ester	100 O.	100		25	25	25	100

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 14	Lowest dosage (mg./kg.)—						
Τ.	ENT no.	Chemical	Highest - dosage		Causing 100% kill of—					
Item no.			(mg./kg.) and	Lethal	I	Larvae of—			Nymphal	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks	
387	24683	Phosphoramidothioic acid, methyl-, O-2,4-di- chlorophenyl O-methyl ester	100 O.	N		100	25	50	I	
388	25934	Phosphoramidothioic acid, s-triazol-3-yl-, O,O- diethyl ester	100 O. 100 Sc.	$\frac{25}{50}$		-	I I	I	I I	
389	25815	Phosphoric acid,1-(ben= zylthio) vinyl diethyl ester	50 O. 50 Sc.	10 10	$^{ m I}_{10^{ m b}}$			I	I	
390	27099	Phosphoric acid, 1-(4- bromo-2-chlorophenyl)- 2-chlorovinyl dimethyl ester	100 O. 100 Sc.	N 50		-	I	$^{ m I}_{25}$	I	
391	27019	Phosphoric acid, 1-(2- bromo-4,5-dichloro= phenyl)-2-chlorovinyl dimethyl ester	100 O. 100 Sc.	N 100		-	I	I	I	
392	27021	Phosphoric acid, 1-(4- bromo-2, 5-dichloro= phenyl)-2-chlorovinyl dimethyl ester	100 O. 100 Sc.	N 100		т.	I	I I	I	
393	27043	Phosphoric acid, 2-bromo- 1-(2,4-dichlorophenyl)= vinyl dimethyl ester	100 O. 100 Sc.	N 100		т .	I I	I 100	I I	
394	25753	Phosphoric acid, 3-tert- butoxy-2-chloropropenyl dimethyl ester	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 100 \end{array}$	$\begin{array}{c} 100 \\ 100 \end{array}$			_	I I	
395	25749	Phosphoric acid, 3-tert- butoxy-2-chloropropenyl methyl phenyl ester	100 O. 100 Sc.	$_{50}^{ m N}$	$_{50}^{ m I}$			I	I	
396	25592	Phosphoric acid, 1-(2-bu- toxyethoxy)-2,2- dichlorovinyl dimethyl ester	100 O. 100 Sc.	$^{ m N}_{25}$	I			I I	I	
397	25849	Phosphoric acid,butyl ethyl ester, ester with N-hydroxynaphthal= imide	100 O. 100 Sc.	N N	I			Ī	I	
398	25840	Phosphoric acid, 2-chloro- 1-(2,4-dibromophenyl)= vinyl dimethyl ester	100 O. 100 Sc.	N 50		= 0	I	I 50	I I	
399	27020	Phosphoric acid, 2-chloro- 1-(2,5-dibromophenyl)= vinyl dimethyl ester	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 100 \end{array}$		т	I	I I	I I	
400	25818	Phosphoric acid, 2-chloro- 1-(2,4-dichlorophenyl)=	100 O. 100 Sc.	N 100	$\begin{array}{c} 100 \\ 10 \end{array}$			$\frac{1}{50}$	$_{50^{ m b}}^{ m I}$	
401	27018	vinyl dimethyl ester Phosphoric acid, 2-chloro- 1-(2,5-dichlorophenyl)=	100 O. 100 Sc.	100 100		-	I	I I	I	
402	25816	vinyl dimethyl ester Phosphoric acid, 1-[(p- chlorophenyl) thio]vinyl	50 O. 50 Sc.	50 10	I			I I	I	
403	25752	dimethyl ester Phosphoric acid, 2-chloro= propyl 1,2-dibromo-2,2- dichloroethyl ethyl ester		$\begin{array}{c} 100 \\ 25 \end{array}$	$\begin{array}{c} 100 \\ 25 \end{array}$			I I	I 100	

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -	Lowest dosage (mg./kg.)—							
Itom	ENT		dosage		Causing 100% kill of—						
Item no.	no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		4.1.1.	Nymphal		
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks		
404	25751	Phosphoric acid, 2-chloro- propyl 2, 2-dichlorovinyl ethyl ester	100 O. 100 Sc.	25 10	100 25			I I	I		
405	24942	Phosphoric acid, 3-chloro- propyl 2,2-dichlorovinyl ethyl ester	100 O. 100 Sc.	$\begin{array}{c} 100 \\ 25 \end{array}$	I I			I I	I I		
406	25842	Phosphoric acid, 2-chloro- 1-(2,4,5-trichloro- phenyl) vinyl diethyl ester	100 O. 100 Sc.	N 100	$_{50^{\mathrm{b}}}^{\mathrm{I}}$			I	I		
407	25841	Phosphoric acid, 2-chloro- 1-(2,4,5-trichloro- phenyl) vinyl dimethyl ester	100 O. 100 Sc.	N 100	I 50			I	I		
408	27119	Phosphoric acid, 2-chloro- 1-(2,4,5-trichloro- phenyl) vinyl ethyl methyl ester	100 O. 100 Sc.	N 100		-	I	I 50	I		
409	25692	Phosphoric acid, 1-cyclo= hexen-1-yl diethyl ester	100 O. 100 Sc.	$\frac{100}{50}$	I I			I I	I I		
410	25748	Phosphoric acid, 1,2- dibromo-3-tert-butoxy- 2-chloropropyl dimethyl ester	100 O. 100 Sc.	N 50	I I			I I	I		
411	25750	Phosphoric acid, 1,2-di= bromo-2,2-dichloroethyl 2,3-dichloropropyl ethyl ester	100 O. 100 Sc.	100 50	100 100			I	I		
412	25698	Phosphoric acid, 1,2-di= bromo-2,2-dichloro= ethyl methyl phenyl ester	100 O. 100 Sc.	N 25	I I			I	I		
413	25590	Phosphoric acid, 2, 2-di= chloro-1-[2-(hexyloxy)= ethoxy]vinyl dimethyl ester	100 O. 100 Sc.	N 100	I			I	I		
414	25560	Phosphoric acid, 2,2-di= chloro-1-(2-methoxy= ethoxy) vinyl dimethyl ester	100 O. 100 Sc.	100 50	I			I	I		
415	25591	Phosphoric acid, 2, 2-di= chloro-1-(2-phenoxy= ethoxy) vinyl dimethyl ester	100 O. 100 Sc.	N 10	I I			I	I		
416	27191	Phosphoric acid, 2,4-di= chlorophenyl dimethyl ester	100 O. 100 Sc.	N 50		. I . I	I	I 50	I I		
417	25686	Phosphoric acid, 2,2-di= chloro-1-phenylvinyl diethyl ester	100 O. 100 Sc.	N 100	I I			I I	I I		
418	25689	Phosphoric acid, 2,3-di= chloropropyl 2,2-di= chlorovinyl ethyl ester	100 O. 100 Sc.	$\frac{25}{100}$	100 100			I I	I I		
419	25940	Phosphoric acid, diethyl 2,3-bis(ethylthio)= propenyl ester	100 O. 100 Sc.	$\frac{25}{25}$		I	I	I I	I I		

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest	Lowest dosage (mg./kg.)—						
T.	ENT		Highest - dosage		Causing 100% kill of—					
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of		Adult stable flies	Nymphal lone star ticks	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly			
420	2556 7	Phosphoric acid, diethyl ester, ester with N-hydroxynaphthalimide	100 O. 100 Sc.	N 100	I I			I	I I	
421	25814	Phosphoric acid, diethyl 1-(phenylthio)vinyl ester	25 O. 25 Sc.	1 1	25 25			I I	I I	
422	27129	Phosphoric acid, dimethyl ester, ester with 3-hydroxy-N-methyl-ciscrotonamide	100 O. 100 Sc.	50 50		_	5 5	25 10	5 5	
423	23970	Phosphorochloridothioic acid, cyclic 0,0-ester with 2-hydroxy-α- methylcyclohexane= methanol	100 O. 100 Sc.	50 50	I			I I	I	
424	24679	Phosphorochloridothioic	50 O.	N	I			I		
425	27240	acid, 0,0-dibutyl ester Phosphorodiamidic acid, tetramethyl-, penta= chlorophenyl ester	50 Sc. 100 O. 100 Sc.	N 50 50		-	I I	I I I	I I	
426	25873	Phosphorodithioic acid, S-[(2-benzothiazolyl= thio)methyl] O, O- diethyl ester	100 O. 100 Sc.	25 50	I			I I	I	
427	257 39	Phosphorodithioic acid, S-benzylidene O, O- dimethyl ester	100 O. 100 Sc.	N 100	I			I	I	
42 8	25556	Phosphorodithioic acid, S-[(benzylthio) methyl] O,O-diethyl ester	25 O. 25 Sc.	$\begin{array}{c} 2.5 \\ 10 \end{array}$	$\begin{array}{c} 25 \\ 10 \end{array}$			I I	I	
429	22751	Phosphorodithioic acid, S-p-chlorobenzyl O, O- diethyl ester	100 O. 100 Sc.	N 100	I			I I	I	
430	25679	Phosphorodithioic acid, S-[p-chloro-α-(p-chloro- phenyl) benzyl] O, O- diisopropyl ester	100 O. 100 Sc.	N N	I I			I	I	
431	25948	Phosphorodithioic acid, S-chloro-2-norbornyl O,O-diethyl ester	100 O. 100 Sc.	N 50			I I	I I	I	
432	25682	Phosphorodithioic acid, S -(p -chloro- α -phenyl= benzyl) O , O -diethyl ester	100 O. 100 Sc.	N N	I I			I I	I	
433	25683	Phosphorodithioic acid, S - $(p$ -chloro- α -phenyl= benzyl) O , O -dimethyl	100 O. 100 Sc.	N N	100 I			100 I	I	
434	25596	ester Phosphorodithioic acid, S-[2-[(p-chlorophenyl) thio]ethyl] O,O-dimethy	100 O. 100 Sc.	N 50	25 I			50 I	I	
435	25586	ester Phosphorodithioic acid, S-[[(p-chlorophenyl) thio]methyl] O, O- dimethyl ester	100 O. 100 Sc.	N N	50 I			I	I	

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TT: 1	Lowest dosage (mg./kg.)—						
			Highest - dosage		Causing 100% kill of—					
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—	··		Nymphal lone star ticks	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies		
436	25760	Phosphorodithioic acid, S-[(4,6-diamino-s-tri= azin-2-yl) methyl] O,O- dimethyl ester	100 O. 100 Sc.	N 100			50 100	I I	50 100	
437	25953	Phosphorodithioic acid, S-dibromocylopentyl	50 O. 50 Sc.	50 50		I I	I	I	I I	
438	25608	O,O-diethyl ester Phosphorodithioic acid, S-[[(3,3-dichloroallyl)= thio]methyl] O,O- dimethyl ester	100 O. 100 Sc.	N 100	50 I			I I	I	
439	25655	Phosphorodithioic acid, S- [[(3,5-dichlorophenyl) thio]methyl] O,O- dimethyl ester	100 O. 100 Sc.	N 100		_	100 ^ь І	I I	I	
440	25929	Phosphorodithioic acid, O,O-diethyl ester, S-este with 1-benzoyl-3-(mer= captomethyl)-5,5- dimethylhydantoin	100 O. r 100 Sc.	N 100		I	I	I I	I	
441	27269	Phosphorodithioic acid, O,O-diethyl ester, S- ester with N-(2-bromo- 1-mercaptoethyl) phthalimide	25 O. 50 Sc.	25 50		-	I	I	I	
442	27320	Phosphorodithioic acid, O,O-diethyl ester, S- ester with N-(2-chloro- 1-mercaptoethyl) phthalimide	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$		-	I	I	I	
443	27163	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 6-chloro-3- (mercaptomethyl)-2- benzoxazolinone	100 O. 100 Sc.	50 100		I I	I I	I	I	
444	25648	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 6-chloro-2- (mercaptomethyl)- 3(2H)-pyridazinone	25 O. 25 Sc.	$\frac{5}{2.5}$	I I			I	I	
445	27312	Phosphorodithioic acid, O,O-diethyl ester, S- ester with N-(2-cyano= ethyl)-2-mercapto= acetanilide	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		-	I	I	I	
446	25932	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 5-(ethoxy= methylene)-3-(mercapto= methyl) rhodanine	100 O. 100 Sc.	100 N		I I	I	I	I	
447	25949	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 5-ethyl-3- (mercaptomethyl)-4- oxazolin-2-one	100 O. 100 Sc.	N 50		I I	I	I	I	

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Himboot	Lowest dosage (mg./kg.)—						
T	TOTAL		Highest - dosage		Causing 100% kill of—					
Item no.	$ \begin{array}{c} \text{ENT} \\ \text{no.} \end{array} $	Chemical	(mg./kg.) and	Lethal	I	arvae of—			Nymphal	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	- Adult stable flies	lone star ticks	
448	25950	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 4-(hydroxy= methyl)-3-(mercapto= methyl)-4-methyl-2- oxazolidinone	100 O. 100 Sc.	5 25		I I	I	I	I	
449	25874	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 1-(mercapto- acetyl)-1-methylurea	25 O. 25 Sc.	10 10		I	I	I	I	
450	22748	Phosphorodithioic acid, O,O-diethyl ester, S- ester with N-(2-mer- captoethyl) succinimide	100 O. 100 Sc.	$\frac{100}{25}$	$\begin{array}{c} 100 \\ 25 \end{array}$			25 25	100 25	
451	25941	Phosphorodithioic acid, O,O-diethyl ester, S- ester with N-(mercapto- methyl) acrylamide	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 50 \end{array}$		-	I	I	I	
452	25871	Phosphorodithioic acid, O, O-diethyl ester, S- ester with 3-(mercapto- methyl)-2-benzoxazo- linone	100 O. 100 Sc.	10 100		I I	I	I	I	
453	25952	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 3-(mercapto- methyl)-5-methyl-2,4- thiazolidinedione	100 O. 100 Sc.	25 50		I	I	I	I	
454	24867	Phosphorodithioic acid, O,O-diethyl ester, S- ester with N-(mercapto- methyl)-5-norbornene- 2,3-dicarboximide	100 O. 100 Sc.	25 50	I			I I	I	
455	25945	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 3-(mercapto- methyl)-2-oxazolidinone	100 O. 100 Sc.	25 10		-	I	I	I	
456	25959	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 3-(mercapto- methyl) phthalide	100 O. 100 Sc.	N 50		I I	I	I	I	
457	27295	Phosphorodithioic acid, O,O-diethyl ester, S- ester with 3-(mercapto- methyl)-2,4-thiazoli- dinedione	50 O. 50 Sc.	10 25		I	I	I	I	
458	27070	Phosphorodithioic acid, O,O-diethyl ester, S- ester with mercapto-2- propanone, diethyl mercaptole	25 O. 25 Sc.	5ª 25		I	I	I	I	
459	25931	Phosphorodithioic acid, O,O-diethyl S-[2-(ethyl- thio)-6-methyl-4- pyrimidinyl] ester	100 O. 100 Sc.	50 50		I	I I	100 I	I	

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

	LENI/ID		Highest - dosage		Lowest dosage (mg./kg.)— Causing 100% kill of—					
T4										
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—			Nymphal	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks	
460	27159	Phosphorodithioic acid, O,O-diethyl S-9-thia= bicyclo[4.2.1]nonenyl ester	100 O. 100 Sc.	50 100		-	I	I	I	
461	25622	Phosphorodithioic acid, O,O-dimethyl ester, S,S-diester with 1,1'- thiodi-2-propanethiol	100 O. 100 Sc.	N 100	100 I			100 I	I	
462	27268	Phosphorodithioic acid, O,O-dimethyl ester, S- ester with N-(2-bromo- 1-mercaptoethyl)phtha=	100 O. 100 Sc.	N 100		_	I	I	I	
463	27321	limide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with N-(2-chloro- 1-mercaptoethyl)	100 O. 100 Sc.	N 100		I I	I	I	I	
464	25828	phthalimide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with N,N'-diethyl-	100 O. 100 Sc.	N 100		_	I	I	I	
465	27238	2-mercaptomalonamide Phosphorodithioic acid, O , O -dimethyl ester, S -ester with 2-ethoxy-4-(mercaptomethyl)- Δ^2 -1,3,4-thiadiazolin-5-one	100 O. 100 Sc.	N 50		. I . I	I	I	I	
466	27257	Phosphorodithioic acid, O,O-dimethyl ester, S- ester with N-formyl-2- mercapto-N-methyl=	100 O. 100 Sc.	N N		$\frac{25}{25}$	10 25	100 50	100 100	
467	27310	acetamide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 2-mercapto- N,N'-dimethoxy-N,N'-	100 O. 100 Sc.	N N		I I	I	I	50 100	
468	27113	dimethylsuccinamide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 2-[(2-mer= captoethyl)sulfinyl]-N-	100 O. 100 Sc.	N N		I I	I	I	100 100	
469	27112	methylpropionamide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 2-[(2-mer= captoethyl)thio]-N,2-	100 O. 100 Sc.	50 100		- I	I	100 50	50 50	
470	26613	dimethylpropionamide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 2-[(2-mer= captoethyl)thio]-N-	100 O. 100 Sc.	N N	50 I			100 I	25 50	
471	27160	methylpropionamide Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 2-mercapto- N-(2-methoxyethyl) acetamide	100 O. 100 Sc.	N 100		- 0.0	50 50	50 100	100 100	

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow files, stable files, and lone star ticks when administered orally (0.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

	EDV.		Highest -		Lowest dosage (mg./kg.)—					
						Causing 100% kill of—				
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—			Nymphal lone star ticks	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies		
472	27110	Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 3-(mercapto- methyl)-2-benzoxazo= linone	100 O. 100 Sc.	N 100		=	I I	I	I I	
473	27193	Phosphorodithioic acid, O, O-dimethyl ester, S- ester with 4-(mercapto- methyl)-2-methoxy-Δ²- 1, 3, 4-thiadiazolin-5-one	100 O. 100 Sc.	100 N		-	I	I	I	
474	25705	Phosphorodithioic acid, O,O-dimethyl ester, S- ester with N-(mercapto- methyl) phthalimide	100 O. 100 Sc.	N N	100 100			I	I	
47 5	27296	Phosphorodithioic acid, O,O-dimethyl ester, S- ester with 3-(mercapto- methyl)-2,4-thiazo- lidinedione	100 O. 100 Sc.	N 50		-	I	I	I	
476	27072	Phosphorodithioic acid, O,O-dimethyl ester, S- ester with mercapto-2- propanone, diethyl mercaptole	100 O. 100 Sc.	N N		I I	I	I	100 I	
477	27071	Phosphorodithioic acid, O,O-dimethyl S-[(2- methyl-1,3-oxathiolan-	100 O. 100 Sc.	100 100		÷	100 I	50 I	100 100	
47 8	25703	2-yl) methyl] ester Phosphorodithioic acid, O, O-dimethyl S-[(5- nitro-1H-indazol-1-yl)	100 O. 100 Sc.	N 100	І 100ь			I 50	I	
479	25588	methyl] ester Phosphorodithioic acid, O,O-dimethyl S-[[(p- nitrophenyl) thio] methyl] ester	100 O. 100 Sc.	N 25	~			I	I I	
480	25594	Phosphorodithioic acid, O,O-dimethyl S-[(phenylthio)= methyl] ester	100 O. 100 Sc.	N N	$\begin{array}{c} 25 \\ 50 \end{array}$			I	I	
481	25737	Phosphorodithioic acid, S-4,6-dimethyl-2- pyrimidinyl O,O-	50 O. 50 Sc.	$\begin{array}{c} 10 \\ 25 \end{array}$	50 50			I	I	
482	27123	diethyl ester Phosphorodithioic acid, S-4,6-dimethyl-2- pyrimidinyl O-ethyl	100 O. 100 Sc.	$\begin{smallmatrix} 5\\25\end{smallmatrix}$		I	I	I	I	
483	27122	O-isopropyl ester Phosphorodithioic acid, S-4,6-dimethyl-2- pyrimidinyl O-ethyl	100 O. 100 Sc.	$\begin{array}{c} 2.5 \\ 25 \end{array}$		_	I	I	I	
484	27158	O-propyl ester Phosphorodithioic acid, O,O-dimethyl S-9-thia= bicyclo[4.2.1]nonenyl ester	100 O. 100 Sc.	N 100			I	I	I	

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		L	owest dosage	(mg./kg.)-		Nymphal lone star ticks I I I I I I I I I I I I I I I I I I I
T4	ENTE		dosage			Causin	g 100% kill	of	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—			Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	star
485	25681	Phosphorodithioic acid, S-diphenylmethyl O, O- diethyl ester	100 O. 100 Sc.	N N	100 I			100 I	
486	25680	Phosphorodithioic acid, S-diphenylmethyl O, O- dimethyl ester	100 O. 100 Sc.	N N	I			I	
487	27318	Phosphorodithioic acid, O-ethyl S, S-dipropyl	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$		-	I I	I	
488	25866	ester Phosphorodithioic acid, O-ethyl O-isopropyl ester, S-ester with N-(mercaptomethyl)=	100 O. 100 Sc.	25 50	I 1			I	
489	25865	phthalimide Phosphorodithioic acid, O-ethyl O-methyl ester, S-ester with N-(mer= captomethyl) phtha= limide	100 O. 100 Sc.	25 50	25 50			I	
490	25864	Phosphorodithioic acid, O-ethyl O-propyl ester, S-ester with N-mercapto	100 O. 100 Sc.	$\begin{array}{c} 10 \\ 50 \end{array}$	I			I	
491	25820	methyl) phthalimide Phosphorodithioic acid, S-[2-[[(1,4,5,6,7,7-hexachloro-5-nor=bornen-2-yl) methyl] thio]-1-methylethyl	100 O. 100 Sc.	N	I I			I	
492	27207	O,O-dimethyl ester Phosphorodithioic acid, S-hydroxymethyl O,O-	100 O. 100 Sc.	N N		*	I I	I I	
493	25867	dimethyl ester, acetate Phosphorodithioic acid, O-isopropyl O-methyl ester, S-ester with N-(mercaptomethyl) phthalimide	100 O. 100 Sc.	$\begin{array}{c} 2.5 \\ 25 \end{array}$	I			I	
494	24845	Phosphorodithioic acid, S-[(p-menth-1-ylthio)= methyl] O, O-dimethyl ester	100 O. 100 Sc.	N 100	50 I			100 100	
495	25821	Phosphorodithioic acid, O-methyl S, S-dipropyl ester	25 O. 25 Sc.	$\begin{smallmatrix} 5\\2.5\end{smallmatrix}$	I			I	
496	25863	Phosphorodithioic acid, O-methyl O-propyl ester, S-ester with N-(mer= captomethyl)= phthalimide	100 O. 100 Sc.	25 50	I			I	
497	25974	Phosphoro(dithioperoxo)= thioic acid, SS-2,2- dichlorovinyl O,O-diethy ester	100 O. 100 Sc. I	N 100			I I	I	I
498	25975	Phosphoro(dithioperoxo)= thioic acid, SS-1, 2- dichlorovinyl O, O- dimethyl ester	100 O. 100 Sc.	100 100		_	I I	I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest		Lo	west dosage	(mg./kg.)-	_	
T-1	TINE.		Highest - dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—		A 1 1/	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
499	25976	Phosphoro(dithioperoxo)= thioic acid, O, O- dimethyl SS-1, 2, 2- trichloroethyl ester	100 O. 100 Sc.	N N		I	I	I	I I
500	27024	Phosphoro(monothio= peroxoic)acid, O, O- diethyl SO-[2-	50 O. 50 Sc.	50 50		I	I I	I	I
501	27030	(ethylthio) ethyl] ester Phosphoro(monothio= peroxoie) acid, SO-2, 4- dinitrophenyl O, O- diethyl ester	25 O. 10 Sc.	$\frac{25}{10}$		I	I I	I	I I
502	27031	Phosphoro(monothio= peroxoic) acid, SO-3, 5- dinitro-o-tolyl O, O- diethyl ester	10 O. 10 Sc.	$\begin{smallmatrix}10\\2.5\end{smallmatrix}$		I	I	I	I
503	27445	Phosphorothioic acid, O-1, 2, 3-benzothiadiazol- 6-yl O, O-dimethyl ester	100 O. 100 Sc.	$_{100}^{ m N}$	*	I	$^{ m I}_{100^{ m b}}$	100^{b}	I
504	27258	Phosphorothioic acid, O-(4-bromo-2,5- dichlorophenyl) O,O- diethyl ester	100 O. 100 Sc.	100 N		100 I	$^{25}_{\rm I}$	50 I	I I
505	27162	Phosphorothioic acid, O-(4-bromo-2,5-dichloro- phenyl) O,O-dimethyl ester	100 O. 100 Sc.	N N		I	I	100 I	I I
506	27464	Phosphorothioic acid, <i>O</i> -7-chloro-4-benzo= furazanyl <i>O</i> -isopropyl	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		I	I	$_{100}^{\rm I}$	I
507	25933	O-methyl ester Phosphorothioic acid, O-(2-chloro-p-menth-8- en-1-yl) O,O-diethyl	100 O. 100 Sc.	50 100		I	I	I	I
508	27117	ester Phosphorothioic acid, O-[2-chloro-1-(2,4,5- trichlorophenyl)vinyl]	100 O. 100 Sc.	N 100		I	I I	I	I I
509	27409	O, O-dimethyl ester Phosphorothioic acid, O-(2,5-dichloro-4- iodophenyl) O, O-diethyl	100 O. 100 Sc.	N 50		50 I	50 I	50 I	I I
510	27408	ester Phosphorothioic acid, O-(2,5-dichloro-4-iodo= phenyl) O,O-dimethyl ester	100 O. 100 Sc.	N 100		$_{100}^{\rm I}$	$_{100^{ m b}}^{ m I}$	I	I
511	27569	Phosphorothioic acid, O-(2,5-dichloro-4-iodo= phenyl) O-ethyl O-methyl ester	100 O. 100 Sc.	N 100		I	I	100 I	I I
512	25553-X	Phosphorothioic acid, S-[[(2,5-dichlorophenyl) thio]methyl] O,O- diethyl ester (25-percent emulsion concentrate)	50 O. 50 Sc.	50 50	-			I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		L	owest dosage	(mg./kg.)-		
Itam	ENT		dosage			Causin	g 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	arvae of—		4.1.1.	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
513	25589	Phosphorothioic acid, S-[[(2,5-dichlorophenyl) thio]methyl] O, O- dimethyl ester	100 O. 100 Sc.	N 50	I I			I	I I
514	25972	Phosphorothioic acid, S-2,2-dichlorovinyl O,O-dimethyl ester	100 O. 100 Sc.	50 50			I	I I	I
515	25957	Phosphorothioic acid, O,O-diethyl ester, O-ester with p-chloro-N-(2-hy=droxyethyl)-N-methyl=benzenesulfonamide	100 O. 100 Se.	N 50			I	I	I I
516	27449	Phosphorothioic acid, O, O-diethyl ester, O-ester with (o-chlorophenyl)= glyoxylonitrile oxime	100 O. 100 Sc.	N 100		$_{100^{\mathrm{b}}}^{\mathrm{I}}$	I	I	100 100
517	27485	Phosphorothioic acid, O, O-diethyl ester, O-ester with (2, 6-dichlorophenyl) glyoxylonitrile oxime, α-isomer	100 O. 100 Sc.	100 100		_	I	I	I I
518	27469	Phosphorothioic acid, O, O-diethyl ester, O-ester with (2, 6-dichlorophenyl) glyoxylonitrile oxime, β-isomer	100 O. 100 Se.	N 100		I	I	I	I I
519	27144	Phosphorothioic acid, O, O-diethyl ester, O-ester	50 O. 50 Sc.	$\begin{array}{c} 25 \\ 50 \end{array}$			$\begin{array}{c} 25 \\ 50 \end{array}$	$_{50}^{\mathrm{I}}$	$\frac{1}{50}$
520	25958	with 3-hydroxycoumarin Phosphorothioic acid, O,O- diethyl ester, O-ester with N-(2-hydroxy= ethyl)benzenesul= fonomide	100 O. 100 Sc.	50 25		I	I	I	I I
521	25611	Phosphorothioic acid, O, O-diethyl ester, O-ester with 3-(hydroxy=methyl)-1,2,3-benzo=triazin-4(3H)-one	50 O. 50 Sc.	25 25	I I			I	I I
522	25706	Phosphorothioic acid, O, O-diethyl ester, S-ester with N-(mercapto=methyl) phthalimide	100 O. 100 Sc.	10 .5ª	I I			I	I 100
523	27448	Phosphorothioic acid, O, O- diethyl ester, O-ester with phenylglyoxylo= nitrileoxime	100 O. 100 Sc.	N N		100 100	100 100	100 I	50 I
524	25741	Phosphorothioic acid, O, O- diethyl ester, O, O, O- triester with S-triazine-	100 O. 100 Se.	N 100	I I			I	I
525	19507	2,4,6-triol Phosphorothioic acid, 0,0- diethyl 0-(2-isopropyl- 6-methyl-4-pyrimidinyl) ester	100 O.	100		I	I	I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow files, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		Lowest dosage (mg./kg.)—					
T4	TO NITE		dosage			Causin	g 100% kill	of—		
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal]	Larvae of—		A .ll4	Nymphal	
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks	
526	22820	Phosphorothioic acid, O, O-diethyl O-(6-methyl-2-propyl-4-pyrimidinyl) ester	100 O. 100 Sc.	100 100	I			I	I	
527	27377	Phosphorothioic acid, O, O-diethyl O-2-methyl-4-quinolyl ester	100 O. 100 Sc.	50 50		-	I I	I	I I	
528	25944	Phosphorothioic acid, O, O-diethyl O-4-methyl-2-quinolyl ester	100 O. 100 Sc.	N 50		-	I I	I	I I	
529	25636	Phosphorothioic acid, O, O-diethyl O-[4-(methyl=thio)-m-tolyl] ester	100 O. 100 Sc.	$\begin{array}{c} 25 \\ 50 \end{array}$	10 10			I 100	$^{25}_{\rm I}$	
530	25673	Phosphorothioic acid, O, O-diethyl O-[4-(methyl-thio)-3, 5-xylyl] ester	100 O. 100 Sc.	N N	$\begin{array}{c} 10 \\ 25 \end{array}$			10 100	$\begin{array}{c} 50 \\ 25 \end{array}$	
531	25597	Phosphorothioic acid, O, O-diethyl O-m-pentadecyl=	100 O. 100 Sc.	N N	I I			I	I	
532	27311	phenyl ester Phosphorothioic acid, 0,0- diethyl 0-3,5,6-tri=	100 O. 100 Sc.	N 100		-	100 100	100 I	I I	
533	25848	chloro-2-pyridyl ester Phosphorothioic acid, O, O- diethyl S-[(2, 4-xylyl=	100 O. 100 Sc.	50 N	I I			I	I I	
534	27330	thio) methyl] ester Phosphorothioic acid, O,O- dimethyl ester, O,O- diester with 4,4'- dithiodiphenol	100 O. 100 Sc.	N N			10 50	$^{25}_{\rm I}$	100 I	
535	27165	Phosphorothioic acid, 0, 0-dimethyl ester, 0, 0-diester with 4,4'-thio-diphenol	100 O. 100 Sc.	100 N		-	I I	I	I	
536	27465	Phosphorothioic acid, 0,0- dimethyl ester, 0-ester with N-benzyl-4- hydroxyphthalimide	100 O. 100 Sc.	N 50		-	I I	100 I	I	
53 7	27235	Phosphorothioic acid, 0,0- dimethyl ester, 0-ester with 5-chlorosalicylo= nitrile	100 O. 100 Sc.	N 100		4.00	I I	I 100	I I	
538	27230	Phosphorothioic acid, O, O- dimethyl ester, O-ester with 4-hydroxy-m- anisonitrile	100 O. 100 Sc.	N 100		т	100 ^ь I	100 I	I I	
539	25675	Phosphorothioic acid, 0, 0- dimethyl ester, 0-ester with p hydroxybenzu= nitrile	100 O. 100 Sc.	N 100	$\begin{array}{c} 25 \\ 25 \end{array}$			I 100	I	
540	23967	Phosphorothioic acid, 0, 0-dimethyl ester, 0-ester with 6-hydroxy-3(2H)-pyridazinone	100 O.	N		. I	I	I	I	
541	25707	Phosphorothioic acid, O, O- dimethyl ester, S-ester with N-(mercapto- methyl) phthalimide	100 O. 100 Sc.	100 100	$\begin{array}{c} 100 \\ 25 \end{array}$			I	100 100	

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -]	Lowest dosage	e (mg./kg.)–	_	
т.	TINE.		dosage			Causir	ng 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		4.1.1.	Nymphal
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
542	25684	Phosphorothioic acid, O, O-dimethyl O-[4-(methyl=thio)-3,5-xylyl] ester	100 O. 100 Sc.	N 100	10 100			50 I	100 I
543	25923	Phosphorothioic acid, O, O-dimethyl O-m-nitro=phenyl ester	100 O. 100 Sc.	N 100		_	I	I I	I I
544	25715	Phosphorothioic acid, O, O-dimethyl O-4-nitro-m-tolyl ester	100 O. 100 Sc.	N 100	$\begin{array}{c} 100 \\ 100 \end{array}$			$\frac{100}{100}$	I
545	25805	Phosphorothioic acid, S-4,6-dimethyl-2- pyrimidinyl O,O- diethyl ester	50 O. 50 Sc.	50 50	I I			I	I
546	23284	Phosphorothioic acid, O,O-dimethyl O-2,4,5-tri=chlorophenyl ester	100 O.	N		_ I	I	I	I
547	24964	Phosphorothioic acid, S-[2-(ethylsulfinyl) ethyl] O,O-dimethyl ester	100 O. 100 Sc.	50 5	$\begin{array}{c} 25 \\ 25 \end{array}$			10 I	10 10
548	25674	Phosphorothioic acid, S-[2-(ethylsulfinyl)-1- methylethyl] O, O- dimethyl ester	100 O. 100 Sc.	N 100	$\begin{array}{c} 50 \\ 100 \end{array}$			$\frac{100}{50}$	50 50
549	25587	Phosphorothioic acid, S- [[(p-fluorophenyl) thio]= methyl] O, O-dimethyl ester	25 O. 25 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$	I I			I	I
550	22821	Phosphorothioic acid, O-(2-isopropyl-6-methyl- 4-pyrimidinyl) O,O- dimethyl ester	100 O.	N		I	I	I	I
551	27326	O-[3-(isopropylthio)-4- nitrophenyl] O, O- dimethyl ester	100 O. 100 Sc.	N N		- I	I	I	I
552	25740	Phosphorothioic acid, O-methyl O-p-nitro= phenyl ester, S-anhy= dridosulfide with O, O- dimethyl phosphoro= thioate	100 O. 100 Sc.	$\frac{100}{25}$	I I			I	I
553	27184	Phosphorotrithioic acid, <i>O</i> -methyl <i>S</i> , <i>S</i> -dipropyl ester	25 O. 25 Sc.	$\begin{array}{c} 25 \\ 25 \end{array}$		- I	I	I	I
554	25455	Phosphorotrithioic acid, O,S,S-triethyl ester	100 O. 100 Sc.	N 100	I I			$_{100}^{\mathrm{I}}$	I I
	26413 25942	Phthalamic acid 1-Phthalancarbamic acid,	100 O. · · · 100 Sc. ·	N N	Î I			I	Î I I
	25942 25946	3-oxo-m-cumenyl ester Phthalic acid, 1,2-dithio= bis(anhydrosulfide) with diethyldithio=	100 O. 100 Sc. 100 O. 100 Sc.	N 25 N 100		_ <u>I</u>	I I I I	I I I I	I I I I
558	27243	carbamic acid Piperazine, citrate	100 O. 100 Sc.	N N			I I	I I	I T

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -			Lowest dosag	e (mg./kg.)-		
T4 am	ENT		dosage (mg./kg.)			Causin	100% kill	of—	
Item no.	no.	Chemical	and method	Lethal to		Larvae of—		Adult	Nymphal
			of administration	guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	stable flies	lone star ticks
559	26332	Piperazine, 1-phenyl-	100 O.	N	Į			Į	Į
560	26783	Piperidine, 1-(3, 5-	100 Sc. 100 O.	N N	I I			I	I I
		dimethylbenzoyl)-	100 Sc.	N	I			Î	I
561	25921	Piperidine, 1-(2-ethyl- heptanoyl)-	100 O. 100 Sc.	· N	I I			I	I
562	13109	Propane, 1, 2-epoxy-3-	100 Sc.	N	Ì			Ī	Ī
		phenoxy-	100 Sc.	N	I			Î	Î
563	26697	1,2-Propanediol,	100 O.	N	I			I	I
564	26047	3-(allyloxy)- 1,3-Propanediol, 2-ethyl-	100 Sc. 100 O.	N N	I			Ţ	I
,01	20011	2-methyl-	100 Sc.	Ñ	Î			Î	Î
565	27260	1-Propanethiol, 3-(tri=	100 O.	N		<u>I</u>	I .	Ĩ	Ĩ
566	26304	butylstannyl)-, acetate 1-Propanol, 2,3-dibromo-	100 Sc. 100 O.	$_{ m N}^{50}$	Ī	I	I	I	I I
,00	20001	1-11 topanoi, 2, 6 distollio-	100 Se.	Ñ	Î			Î	Î
567	24477	2-Propanone, 1,3-	100 O.	Ņ	Ĭ			Ī	Ī
568	22917	dihydroxy- 2-Propanone, hexachloro-	100 Sc. 100 O.	N N	I I			Ţ	I
100	22311	2-1 ropanone, nexacmoro-	100 Sc.	Ñ	Î			İ	İ
569	26003	Propionic acid, 3-(4-	100 O.	N	Ĩ			Ī	Ĩ
70	22371	methoxy-1-naphthoyl)-	100 Sc. 100 O.	$\begin{array}{c} 100 \\ 100 \end{array}$	I I			I	I
570	22011	Propionic acid, 2-thio= cyanato-, ethyl ester	100 O. 100 Sc.	100	İ			Ì	İ
571	8777	Propionitrile	100 O.	25	I			Ĩ	I
750	00000	D: :::::::-::: 9 9/	100 Se.	25 N	I			Ī	Ī
572	26303	Propionitrile, 3, 3'- (methylimino) di-	100 O. 100 Sc.	N N	I I			I	I I
573	25494	Propiophenone, 2, 3-	100 O.	Ñ	Ī			Î	Ī
		epoxy-4'-methoxy-	100 Sc.	N	I			I	I
574	23938	3-(p-methoxyphenyl)- 3,5-Pyrazolidinedione, 4-	100 O.	N	I		• •	I	I
714	20000	butyl-1,2-diphenyl-,	100 Sc.	50	Î			İ	İ
		sodium derivative						_	_
575	25256	Pyridine, 4-nitro, 1-oxide	100 O. 100 Sc.	$\frac{100}{50}$	I I			I	I I
576	27282	Pyrimidine, 4-methyl-2-	100 Se. 100 O.	N	1	I	I	İ	İ
		[(3,4,4-trifluoro-3- butenyl)thio]-	100 Sc.	N		т .	I	I	Ī
577	27281	Pyrimidine, 2-[(3,4,4-	100 O.	N		- I	I	I	I
578	25561	trifluoro-3-butenyl) thio]- Pyrophosphoric acid,	100 Sc. 100 O.	N N	100	_ 1	1	İ	İ
,,,	20001	chloromethyl trimethyl	100 Se.	$\tilde{50}$	100			Ĩ	Ĩ
579	26778	ester Pyrrolidine, 1-m-toluoyl-	100 O.	N	I			I	Ţ
113	20110	1 yrrondine, 1-m-tordoyi-	100 Sc.	Ň	İ			İ	Î
580	28016	2,4(1H,3H)-Quinazo=	100 O.	N		_ I	Î	Ī	I
581	25823	linedione Salicylanilide, 2', 5-	100 Sc. 100 O.	N N	I	_ I	I	I	I I
)01	20020	dichloro-4'-nitro-	100 Sc.	N	I			İ	İ
582	25516	Salicylanilide, 3,4',5-	50 O.	25	I			Î	I
:09	06174 V	tribromo-	50 Sc.	25 N	I			I	I I
583	26174-X	Sodium, [(4-chloro-2- biphenylyl) oxy]-, mix= ture with [(6-chloro-2- biphenylyl) oxy]sodium and (2-biphenylyloxy)= sodium (10:3:5) in wate	100 O. 100 Sc.	N N	I			I	Ī

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			TY:-book		Le	owest dosage	e (mg./kg.)-	_	
.	T23.7M		Highest - dosage			Causir	ng 100% kill	of—	
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal	I	Larvae of—			Nympha
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
584	25621	Succinic acid, 2, 2-dimer= capto-, diethyl ester, S, S-diester with O, O- dimethyl phosphorodi= thioate	100 O. 100 Sc.	N 50	I			I	I
585	25691	Succinic acid,(1-hydroxy= ethylidene)-, diethyl	100 O. 100 Sc.	N 100	100			I	I
586	26475	ester, diethyl phosphate Succinic acid, (2-hydroxy- 2-methylpropyl)-, γ- lactone, ethylene ester	100 O. 100 Sc.	$\frac{100}{100}$	I			I	I
587	26476	Succinic acid, (2-hydroxy-2-methylpropyl)-, γ -lactone, methyl ester	100 O. 100 Se.	N N	I			I	I
588	26474	Succinic acid, (2-hydroxy-2-methylundecyl)-, γ -lactone, decyl ester	100 O. 100 Sc.	N N	I			I	I
589	25620	Succinic acid, mercapto-, 4-allyl-1-(2-mercapto- propyl) ester, S,S-di= ester with O,O-dimethyl phosphorodithioate	100 O. 100 Sc.	100 N	I			I	I
590	27188	Succinic acid, mercapto-, diethyl ester, propyl methylphosphonotri= thioate	100 O. 100 Sc.	100 100		**	I	I	I
591	27470	Sulfamide, N-[(dichloro= fluoromethyl)thio]- N',N'-dimethyl-N-p-	100 O. 100 Sc.	N 25			I	I	I
592	17254	tolyl- Sulfanilamide, N'-2- quinoxalinyl-	100 O. 100 Sc.	N N		· ·	I I	I	I I
593	25927	Sulfide, amidino dimethyl= thiocarbamoyl, hydrogen	100 O.	100 N		. <u>I</u>	I I	I I	I I
594	27115	thiocyanate Sulfide, p-chlorophenyl 2,4,5-trichlorophenyl	100 O. 100 Sc.	N N		-	I	I I	I I
595	27226	Sulfurous acid, 2-(p-tert- butylphenoxy) cyclo= hexyl 2-propynyl ester	100 O. 100 Sc.	N 100		Ţ	I	I I	I
596	27224	Sulfurous acid, 1-[(p-tert- butylphenoxy) methyl]= propyl o-tolyl ester	100 O. 100 Sc.	N N		*	I	I I	I I
597	27225	Sulfurous acid, 1-[(p-tert- pentylphenoxy)= methyl]propyl 2- propynyl ester	100 O. 100 Sc.	N N		I I	I	I	I
598	26257-X		100 O. 100 Sc.	50 50	I I			I	I
599	19510-X	Tergitol NPX, a nonyl- phenyl ether of poly- ethylene glycol	100 O. 100 Sc.	N N	I			I	I I
	26662	Tetradecanamide, N , N - dimethyl-	100 O. 100 Sc.	100 100	I I			I	I I
601	24858	Thiocyanic acid, (p-chloro= phenoxy) methyl ester	100 O. 100 Sc.	N N	I			I	I

See footnotes at end of table.

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			Highest -		I	owest dosage	e (mg./kg.)-	g./kg.)—					
τ.	END		dosage			Causin	ng 100% kill	of—					
Item no.	ENT no.	Chemical	(mg./kg.) and	Lethal		Larvae of—		A 1-1	Nymphal				
			method of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks				
602	25526	Thiocyanic acid, (1,4,5,	100 O.	N	Ī			Ī	Ī				
		6,7,7-hexachloro-2,5- norbornadien-2-yl) methyl ester	100 Sc.	100	I			I	Ι				
603	25559	Thiocyanic acid, 2- hydroxypropyl ester, dimethylcarbamate	50 O. 50 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$	I			I	I				
604	23584-X	Thioperoxydiphosphoric	100 O.	N	I			I	I				
		acid, tetraethyl ester (75 percent) and tetra- isopropyl ester (25 percent)	100 Sc.	N	I			I	I				
605	25764	Thiophene, tetrachloro-	100 O.	50	Ī			I	I				
		o militaria di sala	100 Sc.	100	Ĭ			Ī	Ī				
606	26782	2-Thiophenecarboxamide, N, N -diethyl-4-methyl-	100 O. 100 Sc.	N 100	I I			I	I				
607	33253	Thiophene-3-o1, tetra- hydro-, carbanilate,	100 O. 100 Sc.	N N		- I	I	Î	Î I				
608	25208	1,1-dioxide Tin, acetoxytriphenyl-	100 O.	50		_ I	I	I	I				
000	20200	,	100 Sc.	100		_ I	I	I	I				
609	25207	Tin, chlorotriphenyl-	100 O.	100		- I	I I	I I	Ţ				
610	26331	Tin, dibutylbis	100 Sc. 100 O.	$^{50}_{ m N}$	Ī	_ 1	1	Ī	I				
		(lauroyloxy)-	100 Sc.	N	Ī			I	Ī				
611	28009	Tin, hydroxytriphenyl-	100 O. 100 Sc.	$\frac{100}{100}$		- I I	I I	I	I				
612	25517-X	Tin, tributyl-, derivative	100 Sc.	50	I		<u>.</u>	İ	I I				
		with tall oil	100 Sc.	100	I			Ĭ	I				
313	27261	Tin, tributyl(oleoyloxy)-	100 O. 100 Sc.	$\begin{array}{c} 50 \\ 25 \end{array}$		_ I _ I	I I	I I	I				
314	26774	m-Toluamide	100 O.	Ñ	Ī	- .		İ	I				
		m 1 11 37 / /	100 Sc.	N	Ĩ			Ī	Ī				
615	26777	m-Toluamide, N-tert- butyl-	100 O. 100 Sc.	N N	I I			I	I				
616	32949	m-Toluamide, N -butyl-	100 O.	Ñ	Î			Î	I				
	0.0	N-ethyl-	100 Sc.	N	Ī			Ī	Ī				
617	26773	m-Toluamide, N, N - dibenzyl-	100 O. 100 Sc.	N N	I I			I	I				
318	26781	m-Toluamide, N , N -	100 O.	N	I			Î	I				
210	06770	diethyl-α-hydroxy-	100 Sc.	N	I I			I	I				
619	26779	m -Toluamide, N , N - diethyl- α , α , α -trifluoro-	100 O. 100 Sc.	N 100	Ī			I	I				
620	26775	m-Toluamide, N, N -	100 O.	N	I			I	I				
621	26804	dipentyl- m -Toluamide, N, N -di-2-	100 Sc.	N	I			I	I				
021	20004	pyridyl-	100 O. 100 Sc.	N N	I			I	I				
622	32948	m-Toluamide, N -ethyl- N -	100 O.	N	I			I	I				
623	32952	isobutyl- m-Toluamide, N-ethyl-N-	100 Sc. 100 O.	N N	I			I	I I				
020	02002	propyl-	100 O. 100 Sc.	N	Ï			İ	I				
624	20931	m-Toluamide, N -isobutyl-	100 O.	N	Ī			I	I				
625	32953	m-Toluamide, N-isobutyl-	100 Sc. 100 O.	N N	I I			I	I				
219	02000	N-propyl-	100 O. 100 Sc.	N	İ			İ	I I				
626	32956	m-Toluamide, N -	100 O.	N	I			Į	I				
627	32951	isopropyl- m-Toluamide, N-propyl-	100 Sc. 100 O.	N N	I I			I	I I				
	0200I	m-10iuamiue, W-piopyl-	100 O. 100 Sc.	N	İ			İ	İ				

Table 1.—Systemic effectiveness of 640 compounds against screwworms, secondary screwworms, black blow flies, stable flies, and lone star ticks when administered orally (O.) and subcutaneously (Sc.) to guinea pigs. [N indicates no administered dosage was lethal to the guinea pig, and I indicates no dosage was systemically active against the arthropod.]—Continued

			III:-b4		L	owest dosage	e (mg./kg.)-	_	
T4 - ma	ENT		Highest - dosage			Causin	of—		
Item no.	ENT no.	Chemical	(mg./kg.) and method	Lethal		Larvae of—		A .llı	Nymphal
			of administration	to guinea pig	Screw- worm	Secondary screw- worm	Black blow fly	Adult stable flies	lone star ticks
628	28468	p-Toluenesulfonamide, N-tert-butyl-	100 O. 100 Sc.	N N		_ I	I	I	Į
629	26299	m-Toluic acid, hydrazide	100 Sc. 100 Sc.	N N	I I			Ĭ I	İ
630	24382	m-Toluic acid, methyl ester	100 O. 100 Sc.	N N	I I			Ĭ I	I I
631	32958	m-Toluic anhydride	100 O. 100 Sc.	N N	I			I I	I I
632	25618	p-Toluidine, N -(p-chloro-phenyl)- α , α , α -trifluoro-2-nitro-	100 O. 100 Sc.	N N	I			I I	I
633	28546	Triethylamine, 2-[(3,7-dimethyl-2,6-octadi=enyl)thio]-, trans-	100 O. 100 Sc.	N N		- I	I	I	I
634	28544	Triethylamine, 2-(2(10) - pinen-3-yloxy)-	100 O. 100 Sc.	N 100		-	I	I	I
635	28545	Triethylamine, 2-(2- pinen-4-yloxy)-	100 O. 100 Sc.	$\frac{100}{100}$		Ī	Î	Î I	Î I
636	44584	Tung oil, processed	100 O. 100 Sc.	N N			I I	I I	I I
637	24935	Urea, 1-acetyl-2-thio-	100 O. 100 Sc.	$\frac{100}{100}$			I	I I	I
638	26241-X	X-77 Spreader-activator, a mixture of alkylarylpoly (oxyethylene) glycols and free fatty acids in iso- propyl alcohol	100 Sc.	N N	I			I	I
639	27190	Xanthic acid, butyl-, benzyl ester	100 O. 100 Sc.	N N		-	I	I I	I
640	28465-X	m-Xylyl sulfone, 55 per- cent, and related isomers	100 O.	N N		т.	Î I	I I	I I

a Lowest dosage tested.

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^b Inconsistently effective.

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ENT Num	ber	Item Nun	nber	ENT Num	ber	Item Number
1348			3	25089	(Hoffman-LaRoche RO2-8752)	216
3291	(Hallcomid M-18)		278	25207	(triphenyltin chloride)	
5734	(Armour ARD-198)		281	25208	(triphenyltin acetate)	
6183	(Eastman 2879)			25256	(Phillips 1070)	
6187	(Eastman 5491			25353	(
7037	(2000)			25363		
8777				25389		
8981				25455	(Mobil VC 1-535)	
9519	(Eastman 1298)			25494	(Eli Lilly 02026)	
10519	(Hoffman-LaRoche RO2-8731)			25495	(Eli Lilly 04243)	231
13109			562	25498	(Eli Lilly 04470)	
15918				25499	(Eli Lilly 04653)	
16894	(propyl thiopyrophosphate)		211	25513	(Shell SD-4554)	
17254	(Sulfaquinoxaline®)		592	25516		
17333	(Furacin)		222	25517-X	(TIN-SAN)	612
18066-X	(Dilan ®)		49	25525	(Velsicol 57–CS–41)	289
18304				25526	(Velsicol 57-CS-5)	
18423			264	25545	(isobenzan)	253
19059	(Pyromat ®)		79	25553-X	(Geigy G-32500)	512
19473			204	25556	(Geigy G-33445)	
19507	(diazinon)		525	25559	(Geigy G-31987)	603
19510-X			599	25560	(Geigy G-31528)	
20931			624	25561	(CPE (Graco))	578
22053	(Bay-16644)			25567	(Bay-25820)	
22371	(Bayer E-1984)			25569	(Bay-28589)	294
22748	(Bayer R-1670)		450	25571	(Shell SD-3958)	
22751	(Bayer R-1827)			25572	(Shell SD-3939)	183
22820	(Pirazinon ®)			25577	(Shell SD-5533)	
22821	(Geigy G-25039)		550	25578	(Shell SD-5539)	
22917				25579	(thioquinox)	
23030	(Eastman P-4316)		8	25586	(Geigy G-29288)	
23056	(CBC-100,236)		224	25587	(Geigy G-33397)	549
23112				25588	(Geigy G-34542)	479
23121	(Hoffman-LaRoche RO2-8001)		54	25589	(Geigy G-34099)	513
23284	(ronnel)			25590	(Geigy G-34597)	
23392	(Shell SD-2653)		199	25591	(Geigy G-34598)	
23393	(Bromodan)		270	25592	(Geigy G-34599)	
23540	(Aldrich D-5455)			25594	(Geigy G-30492)	
23575	(Aldrich AC-3995)			25596	(Bay-26405)	
23584-X	(Phostex ®)			25597		
23602				25601	(Substanz 215)	
23864-X	(TV 1 TYNG FOO)			25603	(Velsicol 57-CS-47)	
23872	(Hooker HRS-788)			25604	(Velsicol 53–CS–27)	
23938	(Phenylbutazone®)			25607	(Phosphocel)	64
23967	(Am. Cy. 12433)		540	25608	(Monsanto CP-22258)	438
23970	(Union Carbide 8305)		423	25611	(Bay-26660)	521
24259				25615	(Bay-30554)	
24351	(C C I I 1007A141)		48	25616	(Bay-30749)	
24382	(S. C. Johnson 1387A141)			25617	(Bay-30750)	
24419	(Monsanto CP-10739)			25618	(Bay-31757)	
24477	(M 1:1 V() 0, 100)			25619	(Bay-31956)	
24679	(Mobil VC 3–103)		424	25620	(Velsicol 58–CS–39)	589
24680	(Dow ET-75)		386	25621	(Velsicol 58-CS-56)	
24683	(Dowco 102)		387	25622	(Velsicol 58–CS–51)	
24685	(Dowco 104)			25623	(Shell SD-2580)	
24687	(Dowco 106)			25624	(Shell SD-3945)	
24688	(Dowco 107)			25625	(Shell SD-4281)	
24728	(dimetan) (Hercules AC-1347)		104	25626	(Shell SD-4442) (Shell SD-4893)	
24845				25628	(Shell SD-4893)(Shell SD-5268)	
$24852 \\ 24858$	(Hercules AC-4056) (Hercules AC-4245)		80	25629		
	(Hercules AC-4559)		454	25630	(Shell SD-5408) (Shell SD-6097)	
24867				25632		
$24935 \\ 24942$	(Aldrich A-2285)			25633	(Shell SD-6164)	
24942 24964	$(Bay-23428)_{}$ (oxydemetonmethyl)		547	25636	(Bay-29492) (Geigy-34445)	
24991	(Shell SD-4464)		179	$25648 \\ 25650$	(Hercules 4580)	
$\frac{24991}{24993}$	(Shell SD-4401)		189	25651	(Am. Cy. 24055)	
$\frac{24953}{25067}$	(Hoffman–LaRoche RO2–8016)		102	$\frac{25051}{25655}$	(Geigy G-35157)	
25073	(Homman-Bartoche 1002-3010)		53	$\frac{25055}{25657}$	(Stauffer R-2954)	86
25087	(Hoffman-LaRoche RO2-8691)		212	25658	(Stauffer R-2964)	134
	(20000	(and the second of the second	101

25600 (Stauffer R-2967) 66 25758 (Stauffer B-8760) 342 25600 (Stauffer R-2967) 66 25758 (Stauffer B-8778) 341 25611 (Stauffer R-2968) 65 25758 (Stauffer R-3789) 342 25602 (Stauffer R-3249) 78 25750 (Incomazon) 136 2562 (Stauffer R-3244) 77 25761 (Penn. Chem. TD-183) 606 25664 (Stauffer R-3244) 77 25761 (Penn. Chem. TD-183) 606 25664 (Stauffer R-3244) 77 25761 (Penn. Chem. TD-183) 606 25665 (Stauffer R-3242) 157 25766 (Stauffer R-3244) 12 25666 (Stauffer R-3242) 157 25766 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25667 (Penn. Chem. TD-183) 606 25677 (Penn. Section Penn. S	ENT Numb	er	Item Number	ENT Num	bber	Item Number
25662 (Stauffer R. 2982). 78 25760 (Going G. 35234). 104 25663 (Stauffer R. 2920). 78 25760 (menazon). 346 2563 (Stauffer R. 2321). 157 25766 (Hereiker 55221B). 106 2563 (Stauffer R. 3275). 261 25765 (Hereiker 55221B). 106 25664 (Stauffer R. 3275). 261 25765 (Stauffer R. 301). 183). 311 25666 (Stauffer R. 3292). 157 25766 (Zectran *). 125 25670 (Bay. 39731). 110 25767 (Vayandotte W. 24). 220 25671 (Bay. 39731). 122 25766 (Stauffer R. 3210). 3418 25671 (Bay. 39737). 123 25766 (Stauffer R. 3210). 3418 25673 (Stauffer R. 3210). 342 25766 (Stauffer R. 3210). 3418 25673 (Stauffer R. 3210). 342 25766 (Stauffer R. 3210). 3418 25673 (Stauffer R. 3210). 3418 25673 (Stauffer R. 3211). 340 25776 (Stauffer R. 3210). 3418 25673 (Stauffer R. 3211). 340 25776 (Stauffer R. 3210). 92 25680 (Stauffer R. 3351A). 440 25776 (Stauffer R. 3421). 92 25680 (Stauffer R. 3351A). 440 25776 (Stauffer R. 3431). 92 25681 (Stauffer R. 3351A). 440 25776 (Stauffer R. 3431). 92 25682 (Stauffer R. 3351A). 440 25776 (Managont C. 94072). 343 25683 (Stauffer R. 3350). 343 25786 (Monagont C. 94072). 343 25684 (Stauffer R. 3350). 343 25786 (Monagont C. 94072). 343 25686 (Stauffer R. 3350). 340 25776 (Monagont C. 94072). 340 25688 (Stauffer R. 3350). 340 25776 (Monagont C. 94072). 340 25688 (Stauffer R. 3350). 340 25776 (Monagont C. 94072). 340 25689 (Stauffer R. 350). 340 25779 (Stauffer N. 2509). 341 25690 (Stauffer R. 3400). 340 25779 (Stauffer N. 2509). 341 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 340 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 340 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 340 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 341 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 341 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 341 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 340 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 340 25690 (Stauffer R. 3400). 340 25790 (Stauffer N. 3509). 340 25700 (Stauffer R. 3500). 340 25790 (Stauffer R. 3400). 340 25	25659	(Stauffer R-2965)	133	25757	(Stauffer B-8760)	342
25662 (Stauffer R3120). 25663 (Stauffer R3243). 153 25766 (Merculos 7522H). 106 25664 (Stauffer R3244). 177 25776 (Penn, Chen. TD-183). 065 25664 (Stauffer R3244). 177 25776 (Penn, Chen. TD-183). 065 25665 (Stauffer R3244). 177 25776 (Penn, Chen. TD-183). 065 25670 (Flay -39731). 110 25767 (Wyandotte W-24). 25671 (Bay -39731). 110 25767 (Wyandotte W-24). 25671 (Bay -39731). 152 25770 (Stauffer N2810). 348 25672 (Bay -39731). 152 25770 (Stauffer N2810). 348 25673 (Bay -28655). 548 25777 (Stauffer N2810). 3414 25673 (Bay -28655). 548 25777 (Stauffer N2810). 3414 25673 (Bay -28655). 548 25777 (Stauffer N2810). 3414 25673 (Bay -28655). 348 25777 (Stauffer N2810). 3414 25673 (Stauffer R3515). 349 25674 (Bay -28655). 340 25776 (Stauffer N2810). 340 25680 (Stauffer R1115A). 340 25680 (Stauffer R1115A). 340 25680 (Stauffer R3515A). 348 25778 (Stauffer R3819). 35680 (Stauffer R3852A). 348 25778 (Monsanto C. P-0227). 358 3680 (Stauffer R3852A). 348 25778 (Monsanto C. P-0227). 358 3680 (Stauffer R3828). 3412 25783 (Monsanto C. P-0229). 359 368 (Stauffer R3809). 358 (Stauffer R3809). 359 25780 (Monsanto C. P-02290). 360 (Stauffer R3809). 361 361 361 361 361 361 361 361 361 361	25660					
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25666 (Stauffer R-3275) 261 25765 (Stauffer N-3061) 311 25766 (Stauffer N-3061) 311 25767 (Wayndoth W 24) 220 25067 (Bay-30731) 110 25767 (Wayndoth W 24) 240 240 25767 (Wayndoth W 25) 240 25672 (Wayndoth W 24) 240 240 25773 (Wayndoth W 25) 240 25773 (Wayndoth W 25) 240 25773 (Wayndoth W 25) 240 25773 (Wayndoth W 25) 240 25774 (Ray-37341) 250 25776 (Stauffer N-2896) 341 25774 (Ray-37341) 250 25776 (Stauffer N-2896) 341 25774 (Ray-37341) 250 25776 (Stauffer N-2896) 323 25774 (Ray-3727) 250 25775 (Stauffer R-3314) 92 25778 (Stauffer R-3314) 92 25779 (Stauffer R-3414) 92 25779 (Stauffe					(Ponn Chom TD 192)	605
25666 (Stauffer R-3292) 1.57 25766 (Zectran ®). 125 25670 (Bay-38731) 1.10 25767 (Wyandotte W-24). 226 25671 (Bay-38731) 1.10 25767 (Wyandotte W-24). 226 25671 (Bay-38731) 1.32 25760 (Stauffer R-2310) 3.48 25673 (Bay-34727) 5.39 25774 (Stauffer N-2310) 3.48 25675 (Bay-34727) 5.39 25774 (Stauffer R-3424) 9.2 25679 (Stauffer R-3531A) 4.86 25776 (Stauffer R-3424) 9.2 25680 (Stauffer R-3525A) 4.85 25780 (Hoke HRS-1422) 1.20 25681 (Stauffer R-3525A) 4.85 25780 (Hoke HRS-1422) 1.20 25682 (Stauffer R-3525A) 4.85 25780 (Hoke HRS-1422) 1.20 25683 (Stauffer R-3525A) 4.85 25780 (Hoke HRS-1422) 3.50 25684 (Stauffer R-3525A) 4.85 25780 (Hoke HRS-1422) 3.50 25684 (Stauffer R-3525A) 4.85 25780 (Hoke HRS-1422) 3.50 25685 (Shell SD-1933) 4.22 25678 (Mosanto CP-40296) 3.61 25688 (Shell SD-1933) 5.0 25789 (Mosanto CP-40296) 3.61 25688 (Shell SD-1933) 5.0 25789 (Mosanto CP-40296) 3.61 25689 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25680 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 4.18 25791-X (Mosanto CP-40296) 3.61 25690 (Shell SD-1936) 5.19 25790 (Shell SD-1936) 5.19 25790 (Shell SD-1936) 5.19 25790 (Shell SD-1936) 5.1		(Stauffer R=3275)	261		(Stauffer N=3051)	311
25670 (Bay-3907) 132 25769 (Wyandotte W. 24). 260 25671 (Bay-39007) 132 25769 (Stauffer N. 2310). 348 25673 (Bay-39007) 132 25769 (Stauffer N. 2310). 349 25673 (Bay-3907) 360 25777 (Stauffer N. 2400). 344 25673 (Bay-3907) 360 25777 (Stauffer N. 2400). 344 25674 (Stauffer R. 3411). 360 25775 (Stauffer N. 2400). 342 25675 (Stauffer R. 3531). 348 25676 (Stauffer R. 3531). 348 25677 (Stauffer R. 3531). 349 25680 (Stauffer R. 3531). 348 25680 (Stauffer R. 3531). 348 25681 (Stauffer R. 3520). 343 25784 (Mataell*). 22682 25682 (Stauffer R. 3520). 343 25785 (Monsanto CP-40272). 342 25682 (Stauffer R. 3520). 343 25786 (Monsanto CP-40273). 368 25688 (Stauffer R. 3520). 343 25788 (Monsanto CP-40273). 368 25688 (Stauffer R. 3520). 343 25688 (Stauffer R. 3520). 343 25688 (Stauffer R. 3520). 343 25688 (Stauffer R. 3520). 343 25689 (Stauffer R. 3520). 343 25689 (Stauffer R. 3520). 343 25689 (Stauffer R. 3520). 343 25689 (Stauffer R. 3520). 343 25689 (Stauffer R. 3520). 343 25680 (Stauffer R. 3520). 343 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25680 (Stauffer R. 3520). 340 25690 (Stauffer R. 3520		(Stauffer R-3292)	157			
25671 (Bay-39007) 132 25769 (Stauffer N-2210) 348 25672 (Bay-37341) 590 25770 (Stauffer N-2890) 348 25674 (Bay-32355) 548 25771 (Stauffer N-2789) 323 25771 (Stauffer N-2789) 323 25771 (Stauffer N-2789) 323 25771 (Stauffer N-2789) 323 25771 (Stauffer N-2789) 323 25771 (Stauffer N-2789) 323 25771 (Stauffer N-2789) 323 25772 (Stauffer R-3351A) 486 25789 (Hoker HRS 1422) 120 (Stauffer R-3352A) 485 25784 (Matacife) 122 25881 (Stauffer R-3852A) 485 25784 (Matacife) 122 25881 (Stauffer R-3852A) 485 25784 (Matacife) 122 25882 (Stauffer R-3828) 432 25785 (Monsanto CP-40272) 339 25883 (Stauffer R-3828) 432 25785 (Monsanto CP-40272) 339 25884 (Bay-37342) 542 25787 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 447 25788 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 447 25788 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 447 25788 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 447 25788 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 447 25788 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 447 25788 (Monsanto CP-40294) 367 25888 (Stauffer R-3828) 448 25791-X (Armour ARD-1789) 324 25890 (Stauffer R-3828) 448 25791-X (Armour ARD-1789) 324 25890 (Stauffer R-3828) 448 25791-X (Armour ARD-1789) 324 25890 (Stauffer R-3828) 448 25791-X (Armour ARD-1789) 324 25890 (Stauffer R-3828) 448 25791-X (Armour ARD-1899) 325 25892 (Stauffer R-3829) 358 25796 (Stauffer R-3829) 325 25892 (Stauffer R-3829) 358 25796 (Stauffer R-3829) 325 25892 (Stauffer R-3829) 348 25790 (Stauffer R-3829) 349 25790 (Stauffer R-3829) 349 25790 (Stauffer R-3829) 349 25790 (Stauffer R-3829) 349 25790 (Stauffer R-3829) 349 25790 (Stauffer R-3829) 349 25790 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829) 349 25890 (Stauffer R-3829					(Wyandotte W-24)	260
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25702						
25703 (Bay-25316) 478 25808 (Stauffer R-4747) 83 25704 (duPont 691) 340 25810 (Hercules 9699) 150 25705 (Imidan **) 474 25814 (Shell SD-7554) 421 25706 (Stauffer R-1505) 522 23815 (Shell SD-7565) 389 25708-X (Kolker R-1501) 304 25818 (Shell SD-7587) 402 25708-X (Kolker K-501) 304 25818 (Shell SD-880) 400 25712 (Bay-37289) 356 25820 (Velsicol 58-CS-52) 491 25713 (Stauffer N-2788) 324 25821 (Mobil VC 3-607) 495 25714 (Bay-37389) 362 25823 (Bay-2353) 581 25714 (Bay-3481) 544 25828 (Bay-47185) 464 25714 (Bay-48131) 544 25828 (Bay-47185) 464 25716 (Ball SD-6830) 227 25831 (Stauffer B-10046) 306 <					()	
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25707 (Stauffer R - 1571) 541 25816 (Shell SD - 7587) 402 25708-X (Kolker K - 501) 304 25818 (Shell SD - 8280) 400 25712 (Bay - 37289) 356 25820 (Velsicol 58-CS-52) 491 25713 (Stauffer N - 2788) 324 25821 (Mobil VC 3-607) 495 25714 (Bay - 38333) 362 25828 (Bay - 47185) 495 25715 (Bay - 41831) 544 25828 (Bay - 47185) 464 25716 (Shell SD - 6890) 227 25831 (Stauffer B - 10094) 306 25718 (Hooker HRS-16) 41 25832 (Stauffer B - 10094) 371 25719 (mirex) 256 25833 (Stauffer B - 10104) 307 25720 (Hercules 7199) 296 25834 (Stauffer B - 10110) 308 25723 (Bay - 36743) 313 25835 (Stauffer B - 10110) 308 25726 (Bay - 37344) 145 25840						
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25712 (Bay-37289)						
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25715 (Bay-41831) 544 25828 (Bay-47185) 464 25716 (Shell SD-6830) 227 25831 (Stauffer B-10046) 306 306 307 3						
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25718 (Hooker HRS-16)						
Str20						
25723 (Bay-36743). 313 25835 (Stauffer B-10190) 308 25725 (Bay-42600). 353 25839 (Shell SD-8306). 180 25726 (Bay-37344). 145 25840 (Shell SD-8436). 380 25731 (Bay-38636). 310 25841 (Shell SD-8436). 340 25732 (Hercules 8717). 149 25842 (Shell SD-8447). 407 25732 (Hercules 8717). 149 25842 (Shell SD-8448). 406 25733 (Bay-44632). 354 25843 (Shell SD-8530). 153 25736 (Banol®). 109 25845 (Chemagro S-7671). 372 25737 (Stauffer R-3413). 481 25846 (Chemagro S-8550). 336 25739 (Shell SD-7488). 427 25847 (Chemagro S-8567). 325 25740 (Shell SD-7653). 552 25848 (Chemagro S-8569). 533 25744 (Shell SD-7393). 582 25849 (Chemagro S-969). 533 25744 (Shell SD-7393). 582 25849 (Chemagro S-925). 302 25745 (Shell SD-7393). 179 25851 (Chemagro S-9225). 302 25746 (Shell SD-6931). 179 25851 (Chemagro S-9266). 357 25747 (Shell SD-638). 186 25852 (Chemagro S-9266). 357 25748 (Shell SD-6931). 187 25864 (Stauffer R-5092). 496 25749 (Shell SD-7400). 410 25864 (Stauffer R-5722). 490 25749 (Shell SD-7394). 395 25865 (Stauffer R-5723). 488 25751 (Shell SD-7078). 404 25867 (Stauffer R-5724). 488 25751 (Shell SD-7078). 404 25867 (Stauffer R-5725). 493 25752 (Shell SD-7078). 403 25868 (Stauffer R-5725). 493 25754 (Shell SD-7079). 403 25868 (Stauffer R-5979). 67 25754 (Shell SD-7078). 404 25867 (Stauffer R-5725). 493 25754 (Shell SD-7078). 404 25867 (Stauffer R-5725). 493 25754 (Shell SD-7078). 404 25867 (Stauffer R-5725). 493 25754 (Shell SD-7078). 405 25868 (Monsanto CP-4015). 345 25754 (Shell SD-7079). 403 25869 (Monsanto CP-40507). 369 25754 (Shell SD-7079). 405 25869 (Monsanto CP-40507). 369 25754 (Shell SD-7079). 405 25869 (Monsanto CP-40507). 369 25754 (Shell SD-7079). 405 25869	25719	(mirex)	256	25833	(Stauffer B–10117)	307
25725 (Bay-42600) 353 25839 (Shell SD-8306) 180 25726 (Bay-37344) 145 25840 (Shell SD-8436) 398 25731 (Bay-38636) 310 25841 (Shell SD-8447) 407 25732 (Hercules 8717) 149 25842 (Shell SD-8448) 406 25733 (Bay-44632) 354 25843 (Shell SD-8530) 153 25736 (Banol®) 109 25845 (Chemagro S-7671) 372 25737 (Stauffer R-3413) 41 25846 (Chemagro S-8550) 336 25739 (Shell SD-7438) 427 25847 (Chemagro S-8567) 325 25740 (Shell SD-6954) 524 25849 (Chemagro S-969) 533 25741 (Shell SD-7393) 58 25850 (Chemagro S-9225) 302 25745 (Shell SD-7319) 179 25851 (Chemagro S-9230) 301 25746 (Shell SD-638) 186 25852 (Chemagro S-9266) <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>						
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25737 (Stauffer R-3413) 481 25846 (Chemagro S-8550) 336 25739 (Shell SD-7438) 427 25847 (Chemagro S-8567) 325 25740 (Shell SD-7053) 552 25848 (Chemagro S-8569) 53 25741 (Shell SD-6954) 524 25849 (Chemagro S-9161) 397 25744 (Shell SD-7393) 58 25850 (Chemagro S-9225) 302 25745 (Shell SD-7319) 179 25851 (Chemagro S-9230) 301 25746 (Shell SD-6838) 186 25852 (Chemagro S-9266) 357 25747 (Shell SD-6931) 187 25863 (Stauffer R-5092) 496 25748 (Shell SD-7400) 410 25864 (Stauffer R-5722) 490 25749 (Shell SD-7394) 395 25865 (Stauffer R-5723) 489 25750 (Shell SD-7078) 404 25867 (Stauffer R-5724) 488 25752 (Shell SD-7079) 403 25868 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>						
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25748 (Shell SD-7400) 410 25864 (Stauffer R-5722) 490 25749 (Shell SD-7394) 395 25865 (Stauffer R-5723) 489 25750 (Shell SD-7172) 411 25866 (Stauffer R-5724) 488 25751 (Shell SD-7078) 404 25867 (Stauffer R-5725) 493 25752 (Shell SD-7079) 403 25868 (Stauffer R-5979) 67 25753 (Shell SD-7169) 394 25869 (Monsanto CP-40115) 345 25754 (Stauffer N-2230) 346 25870 (Monsanto CP-40507) 369						
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25754 (Stauffer N-2230) 346 25870 (Monsanto CP-40507) 369		(Shell SD-7079)	403	25868	(Stauffer R-5979)	67
257 557 (Neauner N=2404)						
	20100	(Nonullel 11-2404)	941	40071	(11ereules 0280D)	402

ENT Number		Item Number	er ENT Number		Item Number	
25873	(Hercules 7846D)	426	26047		564	
25874	(Hercules 8148A)	449	26056			
25875	(Hercules 9935)		26172		259	
25906	(Hercules 7069)		$26174\mathrm{-X}$	(QMRE-1)		
25908	(Hercules 9200)		26176			
25909	(Hercules 9311)		26191			
25911	(Hercules 9326)		26192			
25912	(Hercules 9485)		26207-X	(V-1-1-1 72 CG 04)	265	
25913	(Hercules 9906)(Hercules 9907)		$26238 \\ 26239$	(Velsicol 53–CS–24)	275	
25914 25915	(Hercules 9907)(Hercules 9908)		26240	(Velsicol 55–CS–52)	274	
25916	(Hercules 9995)		26241-X	(Veisicol 38-C5-1)		
25917		108	26257-X			
25920	(U.S. Ind. Chem. 655–34)		26258			
25921	(U.S. Ind. Chem. 655–188)	561	26275			
25922	(dimetilan)		26279		192	
25923	(Bay-45515)	543	26281	(Velsicol PX-689)	196	
25925	(Pfizer GS-4128)	63	26282			
25926	(Pfizer GS-4129)	62	26283			
25927	(Hercules 6578)		26284			
25928	(Hercules 6759)		26287			
25929	(Hercules 6919)		26289	(El: L:II 22700)		
25930	(Hercules 6936)		26291	(Eli Lilly 33726)		
25931 25932	(Hercules 6937)(Hercules 7056)		$26292 \\ 26294$			
25932 25933	(Hercules 7064)		26299			
25934	(Hercules 7157)		26300			
25937	(Hercules 7319)		26302			
25939	(Hercules 7348)		26303			
25940	(Hercules 7403)		26304			
25941	(Hercules 7518)	451	26305		232	
25942	(Hercules 7731)		26306		233	
25944	(Hercules 7841)	5 2 8	26325		23	
25945	(Hercules 7843)		26327			
25946	(Hercules 7936)		26328			
25947	(Hercules 7963)		26329			
25948 25949	(Hercules 7977)(Hercules 8065)		$26330 \\ 26331$			
25950	(Hercules 8066)		26332			
25951	(Hercules 8074)		26353			
25952	(Hercules 8150)	453	26364			
25953	(Hercules 8164)		26365		235	
25956	(Hercules 8492)	6	26366			
25957	(Hercules 8497)	515	26396	(Eastman 7830)		
25958	(Hercules 8498)		26413	(Eastman EKP-7012)		
25959	(Hercules 8499)		26424		268	
25961	(Stauffer N-3727)		26474	(Monsanto CP-31059)		
$25962-X \\ 25963$	(Union Carbide UC-20047A) (Hercules 8064)		$26475 \\ 26476$	(Monsanto CP-31061) (Monsanto CP-31063)		
25964	(Dowco-175)		26492	(Monsanto C1 – 31003)	20-	
25966	(Stauffer N-3338)		26613		470	
25967	(Stauffer R-5976)		26645	(Armour ARD-195)		
25968	(Stauffer R-5977)		26646-X	(Armour ARD-226)		
25969	(Stauffer R-6032)	81	26660-X	(Hallcomid M 8–10)	282	
25972	(Chemagro 4641)		26661	(Hallcomid M-12)		
25974	(Chemagro 4738)		26662	(Hallcomid M-14)	600	
25975	(Chemagro 4745)		26663-X	(Hallcomid M 18-OL)		
25976	(Chemagro 4835)	499	26697		563	
$25977 \\ 25992$	(Monsanto CP-19203) (Shell SD-7727)	334	$26698 \\ 26708$	(Evans Blue)	202	
25992 25995	(Bay-51580)		26773	(S. C. Johnson 1387A57)		
26003	(Eli Lilly 06063)	560	26774	(S. C. Johnson 1387A71)		
26005	(Eli Lilly 10952)	51	26775	(S. C. Johnson 1387A74–2)	620	
26006	(Eli Lilly 11242)	21	26777	(S. C. Johnson 1387A101)		
26007	(Eli Lilly 14053)	20	26778	(S. C. Johnson 1387A102)	579	
26014	(Eli Lilly 15293)	19	26779	(S. C. Johnson 1387A126)		
26018	(Quercetin)	219	26780	(S. C. Johnson 1465A4-11)		
26034	(dicryl)	24	26781	(S. C. Johnson 1465A7-1)		
$26044 \\ 26045$			26782 26782	(S. C. Johnson 1465A23)		
26046			$26783 \\ 26784$	(S. C. Johnson 1465A25)		
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ENT Number		$Item\ Number$	Item Number ENT Number		$Item\ Number$	
26804	(S. C. Johnson 1616A17)	621	27160	(Thiocron)	471	
26999	(Chloropropylate)	31	27162	(bromophos)		
27005	(Velsicol 48–CS–104)		27163	(Chipman ŘP–11974)		
27008	(Stauffer N-2675)		27164	(Niagara NIA-10242)		
27011	(Stauffer N-3336)		27165	(Abate®)		
27012	(Stauffer N-3587)		27179	(Stauffer R-6790)		
27015	(Stauffer N-4543)		27180	(Stauffer N-4548)		
27017-X	(BASF I-155)		$27184 \\ 27185$	(Mobil VC 3–668)(Mobil VC 3–759)		
27018 27019	(Shell SD-8949)		27186	(Mobil VC 3–764)		
27020	(Shell SD-8964)		27188	(Mobil VC 3–789)		
27021	(Shell SD-8972)		27190	(Thompson-Hayward TH-103M)		
27022	(Stauffer B-9340)		27191	(Dowco-182)		
27023	(Stauffer B-9381)	380	27192	(Dowco-183)		
27024	(Stauffer B-9564)		27193	(Geigy GS-13005)		
27025	(Stauffer B-9712)		27207	(Stauffer R-8033)		
27026	(Stauffer B-9713)		27211	(Gen. Chem. GC-9879)		
27027	(Stauffer B-9714)		27212	(Bay-41637)		
27028	(Stauffer B–10095)		$27213 \\ 27214$	(Bay-38799) (Bay-38800)		
27029 27030	(Stauffer B-10204)		27224	(Naugatuck C-940)	506	
27030	(Stauffer B-10205)		27225	(Naugatuck C-912)		
27032	(Stauffer B-10338)		27226	(Naugatuck D-014)		
27033	(Stauffer B-10341)	363	27227	(Stauffer B-11110)	338	
27034	(Stauffer B-10497)		27230	(Stauffer B-11163)		
27035	(Stauffer B-10498)		27235	(Bay-54203)		
27038	(Stauffer N-4168)		27238	(Geigy GS-12968)		
27041	(Mobil MC-A-600) (Shell SD-8988)		27239 27240	(Stauffer B-10288) (Thompson-Hayward TH-184-F)	495	
27043 27044	(Shell SD-9077)		27243	(Antipar)	558	
27044	(Stauffer N-4446)		27249	(Stauffer N-3794)		
27046	(Stauffer R-6395)		27250	(Stauffer N-4328)		
27047	(Stauffer R-6482)	136	27251	(Stauffer N-4330)	312	
27053	(Hercules 12402)		27253	(Union Carbide UC-8454)	151	
27070	(Stauffer B–9323)		27254	(Stauffer R-10043)		
27071	(Stauffer B-9625)		27256-X	(Hoechst 2838)		
27072	(Stauffer B–9627) (Gen. Chem. GC–6593)		27257	(formothion)		
27085 27096	(Shell SD-8786)		$27258 \\ 27260$	(bromophos-ethyl) (Stauffer N-4372)		
27098	(Shell SD-8959)		27261	(Stauffer N-5117)	613	
27099	(Shell SD-8967)		27262	(Upjohn U-12379)		
27109	(Bay-50282)	116	27263	(Upjohn U-20493)		
27110	(Chipman ŔP-11783)	472	27264	(Upjohn U-24157)		
27112	(Chipman RP-13072)		27268	(Hercules 13842)		
27113	(Chipman RP-13378)		27269	(Hercules 13843)		
27114 27115	(Stauffer N-4449) (tetrasul)		$27274 \\ 27281$	(Chemagro 4537) (Stauffer R-5467)		
27117	(Shell SD-9021)		$\frac{27281}{27282}$	(Stauffer R-5478)		
27119	(Shell SD-9102)		27295	(Stauffer R-7239)		
27122	(Stauffer R-5762)		27296	(Stauffer R-7240)		
27123	(Stauffer R-5763)		27298	(Stauffer N-5196)		
27124	(Cooper 29-H-62)		27300	(Union Carbide ÚC-9880)		
27125	(Cooper 57-H-62)	37	27300-a	(Schering 34615)	115	
27120	(Charge BE 5252)	38	27309	(Stauffer N-4988)	317	
27127 27128	(Chevron RE-5353) (Chevron RE-5655)		27310	(Velsicol OCS–21959) (Dursban®)		
27129		422	$27311 \\ 27312$	(Gen. Chem. GC–10284)	445	
27135	(Monsanto CP-42320)		27313	(Shell SD-10576)		
27136	(Monsanto CP-42366)		27314	(Velsicol FCS-13)		
27137	(Monsanto CP-42527)	44	27318	(Mobil VC 9–104)	487	
27138	(Monsanto CP-43856)		27320	(Hercules 14503)		
27139	(Monsanto CP-43858)		27321	(Hercules 14504)		
27140	(Monsanto CP-44016)		27324	(Bay-62863)		
27144 27153	(Niagara NIA-9227) (Gen. Chem. GC-9287)	519	27326	(Bay-69047)		
27154	(Gen. Chem. GC-9160)		$27330 \\ 27333$	(Bay-64995) (Gen. Chem. GC-10101)	61	
27155	(Gen. Chem. GC-8266)		27335	(CIBA C-8514)	220	
27156	(Hooker HRS-1630)	130	27338	(Fisons NC-1493)		
27157	(Hooker HRS-1631)	138	27339	(Neopynamin®)	198	
27158	(Hooker HRS-1634)	484	27341	(duPont 1179)		
27159	(Hooker HRS-1635)	460	27342	(duPont 1335)	34	

ENT Number		Item Number	ENT Number		Item Number
27343	(Velsicol FCS-303)	370	27485	(Bay-79330)	517
27345	(Geigy GA-403)		27553	(Shell SD-15289)	11
27350	(Upjohn U-18120)		27557	(CIBA C-11753)	144
27352	(Upjohn U-22024)	154	27564	(CIBA C-9643)	149
27372	(Mobil MC-327)		27566	(Morton EP-332)	191
27373	(CELA K-37)		27567	(Morton EP–333)	221
27374	(CELA K-41)		27568	(Bay-78389)	19
27375	(CELA K-43)		27569	(CIBA C-11044)	
27376	(Mobil MC-740)		28009	(duTer ®)	611
27377	(Cooper 40–H–62)		28016	(44101)	
27382	(Niagara NIA-10559)	107	28017		
27383	(Niagara NIA-10586)	119	28018	(Anthranilamide)	29
27384		140	28024	(Chemagro 4618)	206
27385	(Niagara NIA-11637)	126	28026		
27386	(Bay=33051)	10	28464		
27392	(Bay-33051) (Union Carbide UC-30044)	128	28465-X		
27393	(Union Carbide UC-30045)	129	28468		
27396	(Chevron Ortho 9006)		28544	(Glidden 36-574-A)	634
27398	(Bay-65258)		28545	(Glidden 76–433–A)	635
27402	(Gen. Mills RC-7794)	25	28546	(Glidden 240–566–A)	
27403-X	(Pennsalt Nissol)		31544	(6	
27404-X	(mecarbam)		31838		
27406	(Stauffer R–10778)		32078		
27407	(Geigy GS-13798)		32948		622
27408	(CIBA C-9491)	510	32949		
27409	(CIBA C-8874)	509	32951		697
27410	(CIBA C-10015)		32952		623
27438	(Fisons NC-5016)		32953	(Tung oil)	625
27445	(Shell SD-15135)		32956	<u> </u>	626
27448	(Bay-77488)	523	32957	: : : : : : : : : : : : : : : : : : :	241
27449	(Bay-78182)	516	32958		631
27464	(Shell SD-15963)	506	33210		156
27465	(Shell SD-12211)	536	33253	- 3°	607
27466	(Bay-42688)		44584.	(Tung oil)	636
27469	(Bay-78755)		50598	(Imabendazoie)	34
27470	(Bay-49854)		60130	(Nicarbažin @)	160
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